NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

WEB-BASED NETWORK MANAGEMENT CONFIGURATION FOR THE INDONESIAN EASTERN FLEET WIDE AREA NETWORK

by

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March 2001

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WEB-BASED NETWORK MANAGEMENT CONFIGURATION FOR THE INDONESIAN EASTERN FLEET WIDE AREA NETWORK

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Submitted in partial fulfillment of the
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I. INTRODUCTION

A. BACKGROUND

The Indonesian Navy consists of integrated weapon systems that include warships, aircraft, naval bases and Marines. The responsibility of the Indonesian Navy is vast, and encompasses 17,506 Indonesian islands widely scattered from west to east. Indonesia has 1,222,466 square miles of sea area and 782,665 square miles of land area inside the unified archipelago country. The Indonesian Navy has two fleets: the Indonesian Western Fleet, responsible for the western region of Indonesia's sea territory, and the Indonesian Eastern Fleet, responsible for the eastern region of Indonesia's sea territory.

Computer communication network in the Indonesian Eastern Fleet are supported from the four main naval bases: Surabaya, Ujung Pandang, Bitung, and Jayapura, which are designed to connect remote naval bases and all naval units dispersed through the entire eastern region. Information systems play an important role in enabling the Indonesian Navy to execute fleet operations all over the country. The Indonesian Eastern Fleet has identified that improvements in its information systems especially its network infrastructure and connectivity are required in order to obtain an effective and efficient naval fleet. The Indonesian Eastern Fleet Network has communication system resources such as telephone, radio-link, microwave-link and satellite systems. Those existing communication system resources are still not linked for optimal data communication exchange to computer systems in local area networks (LANs) or in an integrated wide area network (WAN). This thesis will recommend a method for implementing an

integrated wide area network using web-based network management to utilize the existing computer communication systems in the Indonesian Eastern Fleet.

The arrival of the information age has led to an explosion of distributed users, databases and communications networks in the military sector as well as in the commercial sector. Computer networks today have evolved into complex and often tangled systems. The primary reasons for networking computers are to share information, to share hardware and software, and to centralize administration and support. Effective local area networks (LANs) and an integrated wide area network (WAN) are required to achieve connectivity of the Indonesian Eastern Fleet Network.

Organizations adopting LANs and WANs must also adopt clear techniques and tools to tame these beasts. The organizations that become over reliant on their networks could experience devastating results if down time were encountered. The network administrator's job has become increasingly critical to manage and control the operation of the network. Network management can be defined as the processes and techniques that ensure an organization's network is operating properly and efficiently. The Indonesian Eastern fleet requires the appropriate system to manage and control its network. The implementation of a web-based network management appears to be well suited to support the Indonesian Eastern Fleet's missions and operations. There is a wealth of knowledge that can be effectively captured and transferred wherever needed within the Indonesian Eastern Fleet Network.

B. PURPOSE

The objective of this thesis is to present a model of an integrated wide area network using web-based network management to support fleet operations of the

Indonesian Eastern Fleet. It surveys possibilities for improving computer communications systems to provide a fast, reliable, and effective way of gathering and distributing information to all fleet units. This thesis recommends a standardized LAN infrastructure and the use of common network hardware and software to support web-based network management of the Indonesian Eastern Fleet Network. It reviews current technologies and provides an assessment for future use.

C. SCOPE AND THE ORGANIZATION OF THE STUDY

The scope of this thesis is limited to the following:

- A review of computer and communications networks, and a study research in designing the Indonesian Eastern Fleet Wide Area Network
- An in-depth review of web-server-based technology and Internet Information Server (IIS) 5.0
- An in-depth review of network management and security
- An evaluation of how computer and communications networks using web-based network management can be used effectively to support successful fleet operations
- Web-Based Wide Area Network design using the EXTEND-4 simulation software program

D. METHODOLOGY

The methodology used in this research consists of the following steps:

- Conduct an in-depth search and review of available books, magazine articles, documents, and other library information resources regarding computer networking, web-server technology, network management, and information technology management to acquire the ability to propose a successful information technology strategy
- Develop and administer a user requirements study
- Conduct a search of the Internet and websites for information from military and commercial sources

E. THESIS OUTLINE

This section provides an outline of the different parts of this thesis that explores the general concept of web-based network management and the specific client application

for improving the computer communication network systems in the Indonesian Eastern Fleet.

Chapter I: Introduction – provides a brief description of the development of computer communication systems in the Indonesian Eastern Fleet, the object of this thesis, and the organization of the study.

Chapter II: Problem Definition - describes the need for connectivity in the Indonesian Eastern Fleet Network to support successful fleet missions and operations.

Chapter III: Computer Communication Network - provides an introduction to the fundamental concepts of networks that is needed as a framework for understanding the concepts of network infrastructure, design and implementation.

Chapter IV: Designing Local Area Networks Infrastructure - provides the fundamental guide lines for designing LANs infrastructure, recommends a standardized LAN architecture, LAN connection options, and the selection of a network operating system.

Chapter V: Web-Based Wide Area Network Design - discusses WAN connection services, linking the network, and implementing an integrated WAN. Recommends the appropriate choice of WAN links service, WAN Hardware and Software. The last part of this chapter discusses managing the WAN using web-based technology.

Chapter VI: Describes the proposed WAN design using the EXTEND-4 simulation software program.

Chapter VII: Conclusion.

F. EXPECTED BENEFITS OF THIS THESIS

This thesis will become the foundation of web-based technology studies in the Indonesian Eastern Fleet to achieve the needed network management improvement. The integrated wide area network is expected to support the Indonesian Eastern fleet in making critical changes in how they do business, and ultimately result in increased readiness, contributory support, and overall effectiveness. Central to these benefits is the establishment of a standardized network infrastructure and making significant changes to business practices that will fully utilize the available technology.

The overall benefit of implementing a web-based wide area network is improved fleet readiness through a better computer communications network, real-time fleet support, training and information exchange, and a more responsive method of managing requests for support from the Fleet. Implementing a web-based network management enables the improvement of the organization through more efficiently sharing and gathering information. It enables users to combine knowledge and experience of the entire organization and to fully exploit information technology systems for strategic purposes.

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II. PROBLEM DEFINITION

A. MISSION

The mission and operation of the fleet can be conducted successfully if there is sufficient support from its existing system. The mission of the Indonesian Eastern fleet is to conduct daily sea operations to enforce the law at sea and to maintain sovereignty in the entire eastern sea territory of Indonesia. Coordination and communications systems are crucial to successful operation and to accomplishing the mission. An integrated decision making system and real time access to all relevant data and information are essential to successful fleet operations. This is the point at which information technology infrastructure becomes important; especially the establishment of the Indonesian Eastern fleet wide area network.

A reliable computer communication system is expected to provide an effective method to accomplish the fleet's missions and provide contributory support. It is an essential tool for carrying out the Indonesian Eastern fleet's mission given the complexities of coordinating the fleet. Naval base and naval unit location, unit placement and composition, and communication systems operations are among the factors affecting the fleet operations strategy. All of these components could be better administered with an integrated wide area network computer communications system.

B. THE REQUIREMENTS OF THE INDONESIAN EASTERN FLEET INFORMATION SYSTEMS

1. The Need for Connectivity

The Indonesian Eastern Fleet requires connectivity as a central concept in computer and communications networks. A military organization such as the Indonesian

Eastern Fleet relies on applications like database management systems, electronic mail, and integrated decision-making systems for supporting fleet operation. Any collection of independent computers in all office units in the Indonesian Eastern Fleet need to be able to communicate with one another over a shared network medium. Connectivity provides a means to individually address any device on a network. One aspect of information technology enhancements for the Indonesian Eastern fleet has been the implementation of a plan to establish a wide area network (WAN).

2. Effective Local Area Networks (LANs) and an Integrated Wide Area Network (WAN)

The Indonesian Eastern fleet needs a global, high-speed, interactive computer-network with adequate capacity for voice, video, and a wide range of data communication among its operational units including naval bases, warships, and aircraft. The suitable network would facilitate "just in time" transmission of Indonesian navy policies and positions as well as statements by navy leaders.

The Indonesian Eastern Fleet needs a network system that provides quick access to information via real time databases no matter what the time differences between fleet headquarters in Surabaya and all units in the entire eastern fleet operational area. This wide area network would enhance collaboration on regional strategies and policies across geographic boundaries at no additional cost.

3. Improved Access to the Internet and Other Information Services

The Indonesian Eastern fleet needs the link of computer communication systems that provides improved access to the Internet and other information services. The network would also result in substantial savings. This rapid, interactive network would

provide fast and cost-effective services that will improve the Indonesian Eastern Fleet's information system technology.

4. Minimize Costs

The improvement of Information Technology systems needs a lot of budget available. However, we need to minimize cost that will be spent on designing and building the network, so it will meet the Indonesian Eastern Fleet's budget allocation.

C. THE INDONESIAN EASTERN FLEET NETWORK

Local area networks (LANs) are currently being established in Surabaya main Naval base. The Indonesian Eastern Fleet headquarters is located here from where the communications systems for the entire eastern fleet area are managed and controlled. There are three LANs that are being established in Surabaya: the Indonesian Navy Eastern Fleet headquarters LAN, Surabaya main Naval base LAN, and Juanda Naval air base LAN. In the near future, local area networks are planned to be established in Ujung Pandang, Bitung and Jayapura. These local area networks will be connected together as an integrated wide area network. The improved Indonesian Eastern Fleet network system is required to effectively communicate within the Indonesian Eastern Fleet organization as well as with their Navy counterparts.

The use of computer systems in gathering and distributing information is essential to the daily operations of fleet units. Most operational and administrative offices in the Indonesian Eastern Fleet are equipped with computer systems. The fleet's four main naval bases and their remote naval bases are widely dispersed geographically. This wide dispersion has made it difficult and costly to integrate all the bases into a wide area network, whether by cable, satellite, or dial-up phone.

Computer communication networks are supported from the four main Naval bases in an integrated WAN and are designed to connect remote naval bases dispersed through the entire eastern region. The problem regarding long distance among those widely dispersed naval bases could be solved using web-based technology. An integrated WAN would be able to efficiently connect computer and communication systems in those diversified main naval bases and their remote naval bases. Fleet contributory support to the Navy gaining commands, administrative requirements, and training and exercises will be fulfilled more efficiently using an improved Indonesian Eastern Fleet Network.

D. DESIGN GOALS

The goal of this thesis is to recommend standardized local area network and wide area network configuration that will meet the requirements of the Indonesian Eastern Fleet. The primary goals for the new systems are efficiency, speed and high reliability. By interconnecting all of the Indonesian Eastern fleet's computer communication systems in an integrated web-based wide area network, we gain several advantages, such as improved efficiency, increased productivity, saving effort, seizing opportunities and reduced costs.

The integrated web-based wide area network should be able to take advantage of information systems support by linking all the existing computer and communication systems resources in all of the Indonesian Eastern Fleet units. It should also be managed by a proper network management system to ensure the network operation always run properly. With improvements in information systems technology, the Indonesian Eastern fleet can have effective and rapid access to various strategic planning systems. This

includes force structure and the development of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) capabilities.

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III. COMPUTER COMMUNICATION NETWORK

This chapter introduces the fundamental concepts of networks as a framework for understanding the concepts of network infrastructure, design and implementation. Networking deals with the technology and architecture of the communications networks used to interconnect communicating devices. A network consists of computers and other devices, the physical connection between them, and the additional hardware and software required to enable them to communicate with each other. Why are computer networks important? What motivates people to connect computers together? Sharing is the chief motivation for networking computers. A network enables us to share resources such as files, software application, and devices (hard disks, printers, modems, and so forth). Having a computer communication network enables our organization to work, cooperate and communicate with great efficiency.

A. DATA COMMUNICATION NETWORKING

The fundamental purpose of a communications system is the exchange of data between two or more parties. Electronic communications provide the means for the transmission, reception and processing of information between two or more locations using electronic circuits [Tomasi, 1998].

Many problems appear when multiple communicating devices are directly connected point-to-point. It is very expensive to string a dedicated link between two devices that are separated by thousands of kilometers. The other problem occurs when each node requires a link to many of the others at various times. The solution to this problem is to attach it to a communication network. A network is a group of computers

and various devices (such as printers and routers) that are joined together in a common network medium.

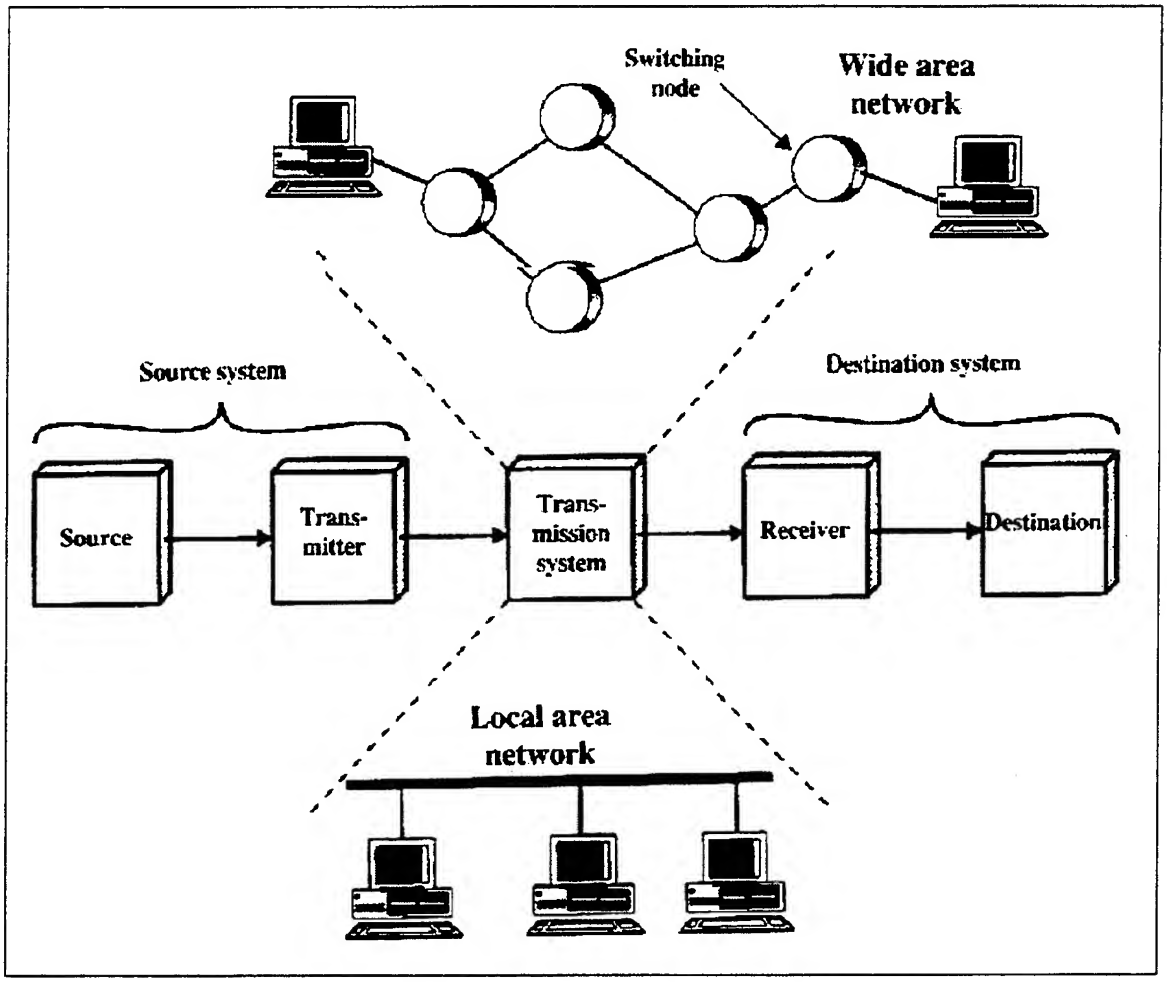

Figure 1. Simplified Network Model. [From Stallings, 2000, p.10]

Figure 1 illustrates the two major types of computer communication networks distinguished by their size and location, as a local area network (LAN) and a wide area network (WAN). A local area network (LAN) is the basic building block of any computer network. It is a group of interconnected computers located relatively close to each other which permits users to share information and resources. A LAN can range from a simple network with two computers connected by a cable, to a complex network

with hundreds of connected computers and peripherals throughout a major corporation. Within a building or campus-style corporate complex, a LAN would be used for:

- ***Interactive Computing:*** The LAN supports flexible database access and resource sharing among groups of users
- ***Switching among multiple host computers:*** LANs allow virtual circuits from a user to several computers
- ***Broadcast and flexible addressing:*** A LAN allows messages to be received by some or all users in a system

A wide area network (WAN) has no geographical limit. It can connect computers and other devices on opposite sides of the world. A WAN is made up of two or more LANs connected together. LANs support transmission over relatively short distances, while WAN's packet-switching technology support transmission in a large geographical area.

B. PEER-TO-PEER AND SERVER BASED NETWORK

Both peer-to-peer and server based exist as the configuration of the end systems of the networks. A peer-to-peer network is where each computer on the network is both a client and a server. All computers are equal, and each workstation functions independently in its administration and operation. A client on the network can access any other client's files, no single person is assigned to administer the resources of the entire network. Users are responsible for making shared resources available, maintaining applications and data on their own computers, installing and upgrading applications, and deciding who gets access to their shared resources.

In a server-based network, one or more computers act as servers and provide the resources to the network. The other computers are the clients and use the resources provided by the servers. A server-based network has a network administrator responsible

for managing the network. Shared data files, programs, and resources are centralized to one or more specially configured computers called a server. All network administration, security, and maintenance are managed by the network administrator. Client/server computing uses a powerful server to store data. The client workstation can process some or all of the requested data. The data is secure and easy to maintain because the file services are in one location on the server.

Centralization provides reliability and consistency in network administration. One advantage of server-based network is better performance, several computers can process applications in parallel. We can distribute application programs to the client computers and the database is processed by the server computer.

C. NETWORK TOPOLOGY

Network topology has an important role in designing a network. A topology is the physical layout of computers on a network. Topologies can be physical (actual wiring) or logical (the way they work). A network's topology is a map of the arrangement of its nodes and connections between them. There are several network topologies that we can choose among for the Indonesian Eastern Fleet network:

1. Bus Topology

In the bus network topology, we connect each node to the network along a single piece of network cable, called a bus. The bus provides the path for the data, and devices tap into the bus along its length to communicate with other devices. Data travels from a node out onto the bus until it reaches the ends of the cable. At each end of the bus, a device called a terminator is installed to prevent data signals from reflecting back onto the bus and causing errors. When the transmitted data hits the terminator, it does not go

any farther. The disadvantage of this topology is that if the single cable acting as the bus is severed at any point, the entire network goes down. Bus topology is used in the Ethernet LANs configuration.

2. Star Topology

In the star network topology, the computers network nodes are connected to a central device called a hub. Small LANs with less than eight nodes usually need only one hub. Larger networks may require many hubs, and hubs can be connected to each other to tie all the nodes together into a single network. Hubs are used to centralize the data traffic and localize failures. If one cable breaks, it will not shut down the entire network.

3. Ring Topology

The ring network topology is made up of an unbroken circle of network nodes. Each node is directly connected to its two immediate neighbors. The data is passed from one computer to another around the circle. If the ring is broken at any point along the way, the entire network stops functioning. This problem is solved in FDDI LANs configuration by using double-linked rings. Token Ring LANs and FDDI LANs configuration use the ring network topology.

4. Star Bus Topology

The star bus is a combination of the bus and star topologies by linking several star topology networks with linear bus trunks. It will not affect the rest of the network if one computer goes down. However if a hub goes down, all computers on that hub are unable to communicate, and if this hub is linked to other hubs those connections also will be broken.

5. Star Ring Topology

The star ring topology is a combination of the star and the ring topology. Both the star ring and the star bus are centered in a hub that contains the actual ring or bus. Linear-bus trunks connect the hub in a star bus, while the hubs in a star ring are connected in a star pattern by the main hub.

D. PASSING DATA ACROSS A NETWORK

Windows 95/98/ME, Windows NT 4.0, Windows 2000, and other network operating systems have implemented a layered, modular networking architecture. That architecture is based on an industry standard called the Open System Interconnect (OSI) Reference Model.

The OSI model defines an approach to networking in which each layer is responsible for a very specific portion of the networking function. It provides a framework for understanding the software and hardware components of networks and how they interact with each other.

Figure 2 depicts the OSI reference model that passes the data from one layer to the next in its journey from source to destination. It describes the flow of data in a network from the lowest layer, representing the physical network connection, to the highest layer, representing the services used directly by applications.

The data begins its journey at the highest layer on Node A and travels down until it reaches the physical network. The information travels over the physical network and arrives at the lowest layer on Node B. It then travels up on Node B until it reaches the application layer. On its way up through the Node B layers, the control information that

was added on Node A is stripped off, layer by layer, until the application receives the original data that was sent by the application on Node A.

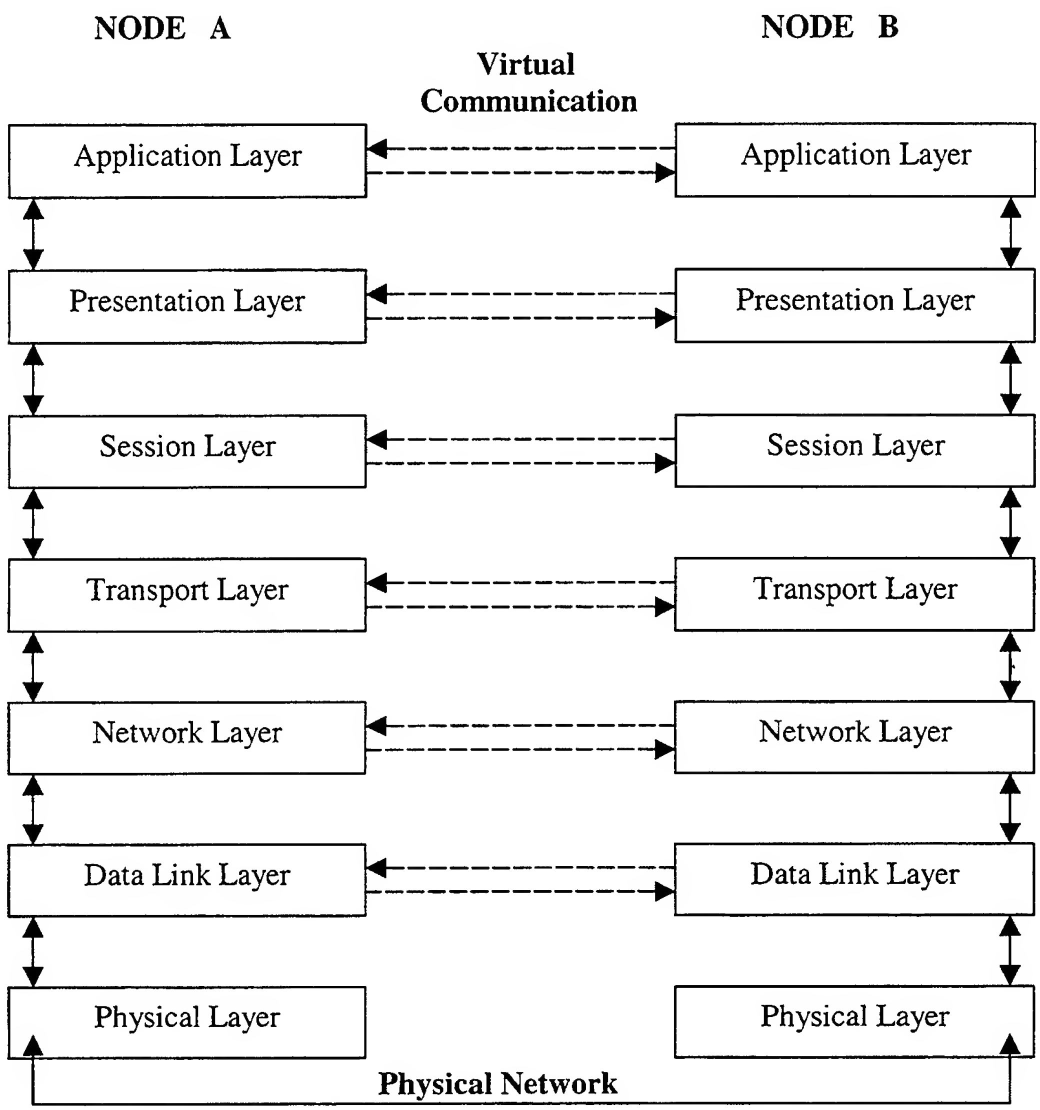

Figure 2. The OSI Reference Model.

The explanation below shows the roles and responsibilities of each layer in the OSI reference model:

1. Layer 1 - Physical Layer

The physical layer is responsible for transmitting raw binary data on the network cable. This layer is the closest to the network hardware and includes both the physical

specifications of how network nodes are connected, and the electrical details of how raw data bits are transmitted and received over the connection medium. It defines how data bits are represented when they are transmitted on the cable. A repeater operates exclusively at the physical layer of the OSI model. The data packets handled by the repeater are exactly the same coming in as they are going out. All other network devices that transmit or receive information on the network also operate at this layer.

2. Layer 2 - Data Link Layer

The Data Link layer packages the raw stream of data into data frames for transmission. A frame is a manageable, logical chunk of information that includes the data to be transmitted as well as information about its source and destination. It also includes information that helps the recipient of the transmission detect whether the data arrived intact. The data link is responsible for preparing data frames for transmission, receiving data frames, managing the network access method, and assuring error-free node-to-node communication.

The Data Link layer is divided into two sublayers: *Logical Link Control (LLC)* and *Media Access Control (MAC).* The LLC manages connections between network nodes and controls the flow of data frames. The MAC sublayer manages the network's access method. In an Ethernet environment, the MAC sublayer implements the CSMA/CD access method. The MAC sublayer isolates the access method management functions from the other functions of the data link layer. It also ensures an error-free communication path between nodes by retransmitting data frames and throwing away duplicate frames when necessary. ATM, Frame relay and X25 are designed to

interconnect point-to-point links. They do not have any MAC protocols and this is one of the reasons that terrestrial WAN protocols are suited to radio WANs.

3. Layer 3 - Network Layer

The network layer is concerned with packet switching. It addresses data transmissions and translates logical into physical addresses. The network layer determines the route of each packet from the sender to the receiver. The Internet Protocol (IP) operates at the network layer and it is stateless and connectionless.

Routers also operate at the network layer and they can route packets across several networks. A router can reach into a data packet, reading and interpreting its embedded addressing information. It uses this information to update its routing tables for the next packet that comes along.

4. Layer 4 - Transport Layer

Transport layer provides transparent transfer of data between end points. Transport Control Protocol (TCP) and User Datagram Protocol (UDP) operate at transport layer. All state of connections resides in the transport protocol. TCP is a transport protocol that does error checking and ensures all packets are delivered efficiently, without error, and processed in the same sequence in which they were sent. UDP is a transport protocol that provides application programs with connectionless communication service but does not error checking.

5. Layer 5 - Session Layer

The session layer is concerned with network management by handling password recognition, logon and logoff procedures, and network monitoring and reporting. The session layer enables application processes on two different nodes to establish,

communicate over, and terminate an end-to-end connection called a session. The session layer focuses on managing the entire dialog between the two processes by controlling who transmits when and for how long. Just as the transport layer ensures in-sequence delivery of packets, the session layer ensures in-sequence delivery of messages.

6. Layer 6 - Presentation Layer

The presentation layer controls the formats used to exchange data between network nodes. It translates application data into a commonly recognized form at the sending node, and translates the data from the common form to an application-specific form at the receiving node. It controls how the network presents itself to applications which is include character set conversion, data compression/expansion, encryption and decryption, file format translation, and graphics command expansion.

7. Layer 7 - Application Layer

Network programs found at the Application layer include electronic mail, database managers, file-server software, and printer-server software. The application layer handles messages, remote logons, and network management statistics.

E. NETWORK SHARED MEDIUM

Network shared medium is used to transmit data over the network and this is an essential element of a computer communication network. Nowadays, transmission media can take the form of cabling system and wireless system. The main types of media available for use in implementing a LAN is as follows:

1. Cabling System

The vast majority of networks today are connected by some sort of wiring that act as a network transmission medium that carries signals between computers. Many cable types are available to meet the varying needs and sizes of networks. The majority of

networks are connected by one of two major classes of cable: twisted-pair (unshielded and shielded) cable or fiber-optic cable.

a. Twisted-Pair Cable

Twisted-pair cable consists of two insulated strands of copper wire twisted around each other: unshielded twisted-pair (UTP) and shielded twisted-pair (STP) cable.

(1) Unshielded Twisted-Pair (UTP) Cable. UTP cable consists of two insulated copper wires, and it has four individually twisted pairs of wires in a common sheath. There are five standard categories of UTP to ensure consistency of products for customers:

- **Category 1 UTP** can carry voice but not data transmissions
- **Category 2 UTP** is rated for signals of 4 MHz with a data rate of 4 Mbps
- **Category 3 UTP** is rated for signals of 16 MHz with a data rate of 16 Mbps. It supports 10 Mbps Ethernet, 16 Mbps Token ring, and 100VGAnyLAN with a maximum length of 100 m per segment.
- **Category 4 UTP** is rated for signals of 20 MHz with a data rate of 20 Mbps. It consists of four twisted pairs of copper wire.
- **Category 5 UTP** is rated for signals 100 MHz or less and supports 100 Mbps Fast Ethernet. Individual cable runs should not exceed 100 meters, including the patch panel and patch cable.
- **Category 5 Enhanced UTP** is rated for 200 MHz with a data rate of 200 Mbps. Category 5 Enhance UTP is now being used in most new constructed LANs.

(2) Shielded Twisted-Pair (STP) Cable. STP cable uses a woven copper-braid jacket that is more protective and of a higher quality than the jacket used by UTP. STP also uses a foil wrap around each of the wire pairs. This gives STP excellent shielding to protect the transmitted data from outside interference, which in turn allows it to support higher transmission rates over longer distances than UTP.

b. Fiber-Optic Cable

Fiber-optic cable is the best choice when the network needs to transmit data at very high speeds over long distances in a very secure media. At the present time, fiber is commonly used in campus networks at all levels above the desktop computer communications.

The Fiber-optic cable principles of operation are different than a copper cable. Copper cable transfers information in the form of transverse electromagnetic waves while optical fibers carry digital data signals in the form of modulated pulses of light. This is a relatively safe way to send data because no electrical impulses are carried over the fiber-optic cable. This means that fiber-optic cable cannot be tapped as easily, and its data cannot be stolen as easily. Fiber-optic cable is good for very high-speed, high-capacity data transmission because of the purity of the signal and lack of signal attenuation. Currently industries are using OC-192 (10 Gbps) for their network transmission. However, because fiber is point to point it cannot be used for bus topologies.

2. Wireless System

Wireless technology uses either optical or radio techniques to transmit data. Computers operating on a wireless network function similar to cable networks, except that the network interface card (NIC) is connected to a wireless transceiver instead of a cable. A wireless bridge can connect buildings that are situated as much as 40 kilometers (about 25 miles) apart. Cellular communication, satellite stations, and packet-radio communications are adding mobility to networks. Wireless LANs use four techniques for transmitting data:

a. *Infrared Transmission*

Infrared networks transmit and receive data using a high-intensity infrared light beam. Infrared transmission has a line-of-sight limitation. If someone walks between the two computers, the wireless connection is broken until there is a clear path again.

b. *Laser Transmission*

Laser networking technology is similar in concept to infrared. It requires an unbroken direct line of sight between sender and receiver. People or objects that get in the way will block transmission. Laser technology is more expensive than infrared.

c. *Narrowband Radio Transmission*

Narrowband radio uses an approach similar to a radio station. The sender and receiver use a specific radio frequency.

d. *Spread-spectrum Radio Transmission*

Spread-spectrum radio transmission broadcasts its transmissions over a range of radio frequency instead of just one. It divides the available frequency into channels. All the wireless nodes in the network synchronize to a specific channel.

3. Cabling System versus Wireless System

A wireless system is convenient, does not require wiring, and is certainly more flexible than a traditional cable network. On the other hand, a wireless system is relatively high cost and its transmission systems relatively slower than CAT-5 UTP cable or fiber optic cable. The fastest data transmission speed over a wireless LAN at the present time is 23.5 Mbps [Computer Magazine, Oct. 2000], while a cabling system LAN using CAT-5 UTP transmits at 100 Mbps; and fiber optic cable in a Gigabit Ethernet is even faster.

So, if our network investment is measured in terms of the cost and bandwidth, wireless networking offers the lowest value. Due to its high cost and transmission speed, wireless is a good alternative only if we have a real need for it. A cabling system is more appropriate for use in the Indonesian Eastern Fleet network as its LAN shared medium.

IV. DESIGNING THE INDONESIAN EASTERN FLEET LANS INFRASTRUCTURE

This chapter forms the foundational guidelines for designing and implementing the Indonesian Eastern Fleet LAN's infrastructure. In designing LAN infrastructure, it is necessary to know the concepts associated with designing the logical layout of our network, as well as the issues involved with creating the physical network infrastructure. Understanding the end user requirements is important because end users will interact with the application running on their network. We must learn what the end user needs, determine which software will best provide that functionality, and finally build software distributions of public domain programs that meet all user requirements for network-based operations. The Indonesian Eastern Fleet network's most important end users are computer operators, naval units personnel, and fleet support facilities personnel. Defining an appropriate technology design and selecting a useful network operating system will determine the performance and the capability of the network.

A. NETWORK ANALYSIS

Network analysis is needed in designing the Indonesian Eastern Fleet network in order to fully understand our design environment. This involves identifying, gathering, understanding system requirements, and developing performance thresholds to determine specified services for the network. The computer network designed must meet the needs of the organization. The Indonesian Eastern Fleet's network goals are to:

- Network the existing computers so that they can more efficiently share information and network resources
- Provide a full access Internet connection
- Provide video conferencing facility

- Provide hypermedia technology including: text, graphics, image, audio, and archive
- Improved fleet readiness through an improvement in information systems technology
- Minimize cost

The network analysis process begins by defining the requirements of our network. Next these requirements will be matched to the existing telecommunication features available and then determine what steps are needed to develop the network. At a minimum, we should consider requirements of the network that consists of:

- The number of users
- The size of the facility
- The environment (office, manufacturing, out-of-doors)
- Performance Characteristic, which include:
  - Storage (disk drive) performance
  - Processor (CPU) performance
  - Memory performance (access time)
  - Bus performance (bus capacity and arbitration mechanisms)
  - Operating system performance

  Information about any of these components can be helpful in estimating the overall performance of computer network as seen in figure 3 below.

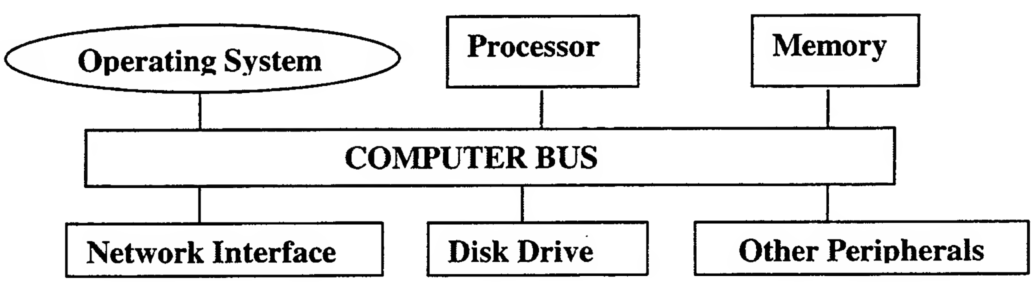

Figure 3. Computer Network Performance Components.

- Location information. It helps to determine the relationships between components of the system.

B. THE STANDARD LAN ARCHITECTURE: ETHERNET TECHNOLOGY

A network's architecture specifies the desired structure of the network. Its purpose is to provide an organization with a framework for more informed decision-making and a guide for ongoing planning. It includes some specification of standards, distribution of system functions and how the components relate to one another.

A standard architecture is critical to the establishment of the Indonesian Eastern Fleet Network. The architecture's main purpose is to provide guidance and structure for implementing the network. It helps to define the information technology strategy. A uniform strategy is needed to insure that all LANs are implemented similarly. This will help to insure that the LANs will function effectively when incorporated into the Indonesian Eastern Fleet Network. The LAN architecture is one part of the overall WAN network architecture. Without a standard LAN architecture, it will be difficult to manage and connect the collection of disparate systems. A uniform approach that conforms to published guidance on standardization will result in a more viable network.

The network architecture can be selected based on its topology, access method, signaling method, or support of a particular type of transmission medium. Although there is no one best network for users, Ethernet represents a diverse mixture of technological characteristics. In the 1980s the IEEE published Project 802. This project generated standards for design and compatibility for hardware components that operated within the OSI physical and data-link layers. The standard that pertains to Ethernet is the IEEE 802.3 specification. Ethernet network architecture strikes a good balance between speed, cost and ease of installation.

1. THE IEEE 802.3 ETHERNET NETWORK

a. The Features

Talking about the Ethernet features begins with the topology. The traditional topology such as a linear bus or another topology such as a Star Bus can be used. The IEEE 802.3 Ethernet Network relies on Carrier Sense Multiple Access/Collision Detection (CSMA/CD) as its access method to regulate traffic on the main cable segment. If two or more computers happen to send data at exactly the same time, there will be a data collision. When that happens, the two computers involved stop transmitting for a random period of time and then attempt to retransmit. Each computer determines its own waiting period; this reduces the chance that the computers will once again transmit simultaneously. Commonly, many computers on the network attempt to transmit data (multiple access); each one first listens to detect any possible collisions. If a computer detects a possible collision, it waits for a random period of time before retransmitting (collision detection). CSMA/CD is known as a contention method because computers on the network compete for an opportunity to send data. Nowadays users should not aware when they are using a contention access method because current implementations are very fast. CAT-5 UTP cable transmits at 100 Mbps and this problem was solved. Table 1 below describes the features of Ethernet technology that we can use to determine our plan in building the local area network infrastructure.

Feature	Description
Traditional topology	Linear bus
Other topologies	Star bus
Type of architecture	Base band
Access method	CSMA/CD
Specification	IEEE 802.3
Transfer speed	10 Mbps or 100 Mbps
Cable type	Cat-5 UTP

Table 1. The Features of Ethernet Technology.

b. Constructing the Ethernet Network

In constructing an IEEE 802.3 Ethernet network either the 10-Mbps IEEE Standards or the 100-Mbps IEEE Standards can be used. A 10 Base-T and a 100 Base-T network can be constructed with network interface cards (NICs), UTP cable, and one or more hubs. Each is installed in the expansion slot of a computer and wired on a point-to-point basis to a hub port. When all the ports on a hub are used, one hub can be connected to another to expand the network, resulting in a physical star, logical bus network structure.

In the definition process of standardization development, both the Ethernet media access control (MAC) and the physical layer require adjustments to permit 100 Mbps operational support. The 10 BASE-T and 100 BASE-T standard supports an operating rate of 10 Mbps at a distance of up to 100 meters (328 feet) over UTP cable without the use of a repeater. The wiring hub in an Ethernet network functions as a multiport repeater: it receives, retimes, and regenerates signals received from any attached station. The hub also functions as a filter; it discards severely distorted frames.

All hubs that conform to IEEE 10/100 BASE-T specifications perform a core set of tasks in addition to receiving and regenerating signals. 10/100 BASE-T hubs test each port connection, detect and handle excessive collisions, and ignore data that exceeds the maximum 802.3 frame size.

Hubs can monitor, record, and count consecutive collisions that occur on each individual station link by using a management agent. Since an excessive number of consecutive collisions will prevent data transfer on all of the attached links, hubs are required to cut off or partition any link on which too many collisions have occurred. This

partitioning enables the remainder of the network to operate in situations where a faulty NIC transmits continuously.

c. The Ethernet Frame Operations

Ethernet breaks data down into frames. A frame is a package of information transmitted as a single unit. It is used to deliver data between computers. An Ethernet frame can be between 64 and 1518 bytes long, but the Ethernet frame header uses at least 18 bytes. Every frame contains control information and follows the same basic organization.

PREAMBLE	DESTINATION ADDRESS	SOURCE ADDRESS	TYPE	DATA	FRAME CHECK SEQUENCE
8 bytes	6 bytes	6 bytes	2 bytes	46-1500 bytes	4 bytes

Header Payload

I--I--I

Figure 4. The Ethernet Frame Format.

The Ethernet packets begin with a Preamble that consists of eight bytes and is used for synchronization. The first two fields in the frame carry 48-bit addresses, called the destination and source addresses. The IEEE controls the assignment of these addresses by administering a portion of the address field. The IEEE does this by providing 24-bit identifiers called "Organizationally Unique Identifiers" (OUIs), since a unique 24-bit identifier is assigned to each manufacturer that wishes to build Ethernet interfaces. This 48-bit address is also known as the physical address, hardware address, or MAC address. The destination address can be a single workstation's address, a group of

workstations, or even several groups of workstations. The source address tells the workstation receiving the message where it came from.

As each Ethernet frame is sent onto the shared signal channel, all Ethernet interfaces look at the first 48-bit field of the frame, which contains the destination address. The interfaces compare the destination address of the frame with their own address. The Ethernet interface with the same address as the destination address in the frame will read in the entire frame and deliver it to the networking software running on that computer. All other network interfaces will stop reading the frame when they discover that the destination address does not match their own address.

The Type field designates which type of format the data is using. Without this information, it is impossible to decipher the packet when it arrives. The Data field is strictly limited; it can hold only a minimum of 46 bytes and a maximum of 1,500 bytes. Frame-Check Sequence provides a mechanism of error detection. It contains a check system of the rest of the frames which allow receiver to detect error.

Computers attached to an Ethernet can send application data to one another using high-level protocol software, such as the TCP/IP protocol suite used on the worldwide Internet. The high-level protocol packets are carried between computers in the data field of Ethernet frames. The system of high-level protocols carrying application data and the Ethernet system are independent entities that cooperate to deliver data between computers.

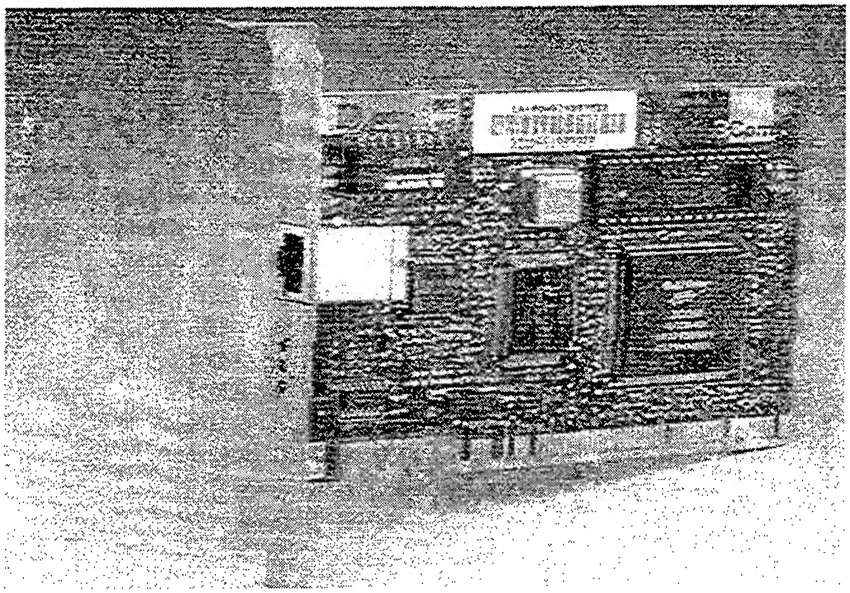

Figure 5. Fast Etherlink 100 BASE-T XLK NIC.

2. Fast Ethernet (100 Mbps) Network

One version of Ethernet technology that widely used is the 10 Mbps twisted-pair category. Fast Ethernet (100 Mbps) is a more recent Ethernet standard which operates over twisted-pair and fiber optic media and has become the accepted standard. Fast Ethernet transmits data much faster than Ethernet, and it also has some other advantages when used in the LAN architecture. These include moderate throughput, numerous vendors, strong commercial support, reliable multi-vendor interoperability and availability in a fiber version.

Fast Ethernet LAN specifications include 100 BASE-TX and 100 BASE-FX. Each specification maintains the use of the MAC protocol used by earlier Ethernet/IEEE 802.3 standards, CSMA/CD. 100BASE-T specifies 100-Mbps operations using the CSMA/CD protocol over two pairs of category 5 UTP cable. 100BASE-FX changes the LAN transport media to fiber optic cable.

IEEE Media Specifications	Cable Support	Connector Support	Coding Scheme
100BASE-TX	Category 5 UTP (2-pair wire)	RJ-45	4B/5B
100BASE-FX	62.5/125-micron fiber-optic cable	RJ-45	4B/5B

Table 2. Fast Ethernet Functionality.

Fast Ethernet 100BASE-TX is inexpensive compared to 100Base-FX because category 5 UTP cable is cheaper than fiber-optic cable. Even though data transmitted over fiber-optic cable is very fast and secure, data transmitted using category 5 UTP cable is already fast enough and good enough to meet the Indonesian Eastern Fleet Network requirements. The Ethernet specifications (IEEE 802.3) of the 10Base2, 10BaseT, and 100BaseTX are explored in Table 3.

	10Base2	**10BaseT**	**100BaseTX**
Topology	Bus	Star bus	Star bus
Cable type	RG-58 (thinnet coaxial cable)	Category 3, 4, or 5 unshielded twisted-pair cable	2-pair Category 5 UTP or STP
Connection to NIC	BNC T connector	RJ-45	RJ-45
Distance	0.5 meters between computers (Max 185 m)	100 meters (328 feet) between the computer and the hub	100 meters (328 feet)
Maximum cable segment length	185 meters (607 feet)	500 meters (1640 feet)	100 meters (328 feet)
Maximum computers per segment	30 (There can be a maximum of 1024 computers per network.)	1 (Each station has its own cable to the hub. There can be a maximum of 12 computers per hub and a maximum of 1024 transceivers per LAN without some type of connectivity.)	N/A

Table 3. Ethernet Specifications (IEEE 802.3).

3. GIGABIT ETHERNET (1000 Mbps) NETWORK

Gigabit Ethernet provides a data transmission capability of 1000 Mbps and supports the CSMA/CD access protocol. Similar to 10 Base-T and Fast Ethernet, Gigabit Ethernet can be used as a shared network through the attachment of network devices to a 1-Gbps repeater hub. It provides 1-Gbps ports to accommodate high-speed access to servers. Gigabit Ethernet operations require workstations, bridges, and routers to use a network interface card to connect to a 1-Gbps network. The maximum distance obtainable for Gigabit Ethernet when transmission occurs using a 1330-nanometer (nm) frequency on single-mode fiber is 3000 meters [Ref. : Held, 1998]. Data transmission on 1000BASE-T Gigabit Ethernet using category 5 UTP cable has a maximum distance of 100 meters, as does 100 BASE-T Fast Ethernet.

There are presently only a very few organizations that can be expected to require the use of a 1-Gbps shared media network. However, the use of Gigabit Ethernet can be expected to play an important role in providing a high-speed network in the future.

4. Making the Technology Choice for the Design

Based upon the need to have good results in network performance, all LANs in the Indonesian Eastern Fleet Network should be implemented as a Fast Ethernet (100 Base-T). This will provide a consistent approach and ensure that the network meets current needs while supporting future growth. Fast Ethernet has sufficient bandwidth to support an increase in network traffic and advances in network technology.

High-Speed Gigabit Ethernet 1000 Mbps is still not widely accepted and is too expensive to be implemented. Fast Ethernet is at the leading edge of Ethernet technology and offers significant advantages over 10 Mbps Ethernet. Fast Ethernet, operating at 100

Mbps, which is ten times faster than 10Base-T Ethernet, is a reliable LAN technology designed to meet high demands for network bandwidth. Network managers also benefit from Fast Ethernet by leveraging the familiarity of the underlying Ethernet technology and the protection offered for investments in applications, cabling, and management expertise.

Fast Ethernet delivers high performance and familiar technology. Another benefit arises from the fact that Fast Ethernet products are becoming increasingly inexpensive. For all of those reasons, Fast Ethernet 100 Base-T LAN is the most appropriate choice for the standard LANs architecture for the Indonesian Eastern Fleet Network. Implementation of Fast Ethernet 100 Base-T will provide a responsive and uniform network environment.

C. DEFINING THE LAN CONNECTION SYSTEM

The local area network (LAN) is a communication network that interconnects a variety of devices for information exchange. Network nodes can consist of workstations with network interface cards (NICs), hubs, bridges, routers and servers. The idea of a shared medium is a key concept when planning a LAN. The infrastructure is the physical wiring of the LAN, over which all network devices communicate. A properly designed infrastructure can be flexible enough to support current and future networking needs. Cable and hardware infrastructure quickly become the primary limiting factors in most LANs.

Connections in the older networks were mainly 10Base2 (Thinnet), 10Base5 (Thicknet), category 3 (CAT- 3), unshielded twisted pair (UTP) and shielded twisted pair (STP). Modern local area networks use mainly category 5 (CAT-5) UTP cable. The

CAT-5 UTP cable is installed point to point between the workstation and the electronics that make up the network, such as a hub or a switch. The CAT-5 UTP cable terminates to an IDF, and an individual cable should not exceed 100 meters long. The CAT-5 UTP cable has four pairs of wires with a lay length of eight twists per foot. It is rated for signals of 100 MHz or less and supports 100 Mbps Fast Ethernet.

The fiber-optic cable connects all the electronic devices throughout the campus to an MDF. The MDF houses the enterprise category network equipment, such as switches capable of switching packets and routers with multiple ports connecting the enterprise together. Fiber-optic cable uses reflected photon (light) energy instead of an electromagnetic charge to transmit its signal. This makes it resistant to electromagnetic interference.

Since efficiency and cost are the main issues in implementing an effective local area network, it is recommended that any new cable installations use CAT-5 UTP cable for future growth. Installation of CAT-5 UTP where new cabling is required allows maximum flexibility for future expected requirements.

D. DEFINING NETWORK PROTOCOL

Protocols are the system of rules and procedures that govern communication between two or more devices. Many varieties of protocols exist at all layers of the OSI model. Not all protocols are compatible, but as long as two devices are using the same protocol, they can exchange data. A network protocol is a set of language and set of rules that nodes agree to use to communicate over the network [Gregg, 1999]. When several computers are networked, the rules and technical procedures governing their communication and interaction are called protocols.

NetBEUI is not a routable protocol. It does not contain enough information to send packets from one network to another. NetBEUI is a network protocol that is used in all Microsoft networking products including MS-DOS and all versions of Windows and Windows NT. The NetBEUI protocol works well on old and lower-end computers running MS-DOS.

Internetwork packet exchange/sequenced packet exchange (IPX/SPX) is the network protocol that is usually used on Novell NetWare networks. However, it can also be used as the main protocol in a pure Microsoft network. IPX/SPX is not routable. It operates at the application and session layers of the OSI model.

Transmission control protocol/internet protocol (TCP/IP) is routable. It enables users to connect and communicate across networks that use different hardware architectures and run different operating systems. TCP/IP can be used to communicate on pure Microsoft networks, or on mixed networks with products such as IntranetWare and UNIX. TCP/IP provides reliable data delivery service by setting up end-to-end connections between two systems that need to exchange data. To do this, it establishes a virtual network between the two computers across all routers in the affected network. TCP uses the Internet Protocol (IP) as the transport to deliver information across the network. The main advantage of TCP/IP is its flexibility. Every operating system platform now supports it. TCP/IP is the default protocol for Unix and the preferred protocol for the NetWare and Windows operating system.

CRITERIA FOR SELECTING NETWORK PROTOCOLS

Characteristics	NetBEUI	IPX/SPX	TCP/IP
Capability to transmit across routers	No	Yes	Yes
Best for corporate intranet	No	No	Yes
Best for large networks	No	No	Yes
Best for pure Microsoft networks (no routing)	Yes	No	Yes
Best for pure Microsoft networks (with routing)	No	No	Yes
Best for small LANs	Yes	Yes	Yes
Best for WANs	No	No	Yes
Ease of client configuration	High	Low	Low
Ease of network administration	High	High	Low
Interoperability with NetWare	No	Yes	No
Interoperability with the Internet	No	No	Yes
Interoperability with UNIX	No	No	Yes
Performance for application server (client/server)	Low	Low	High
Performance for file and printer sharing	Medium	High	Medium
Performance on small networks	High	Medium	Medium

Table 4. Criteria for Selecting Network Protocol [Gregg, 1999]

The Data Link Control (DLC) network protocol enables the network to communicate with certain network printers. The DLC protocol operates in the data link layer and corresponds to the logical link control (LLC) sublayer. When using DLC to communicate with a network printer, the DLC protocol need to be installed on the computer that is acting as the print server for the network printer. Other nodes that send jobs to the print server can use any standard protocol, and do not need to have DLC installed.

User Datagram Protocol (UDP) is a transport layer component that provides data delivery service in the TCP/IP protocol stack. UDP is a connectionless protocol and does not check to see if the packet arrived at its destination. This protocol is used to transmit packets that are time sensitive, or when it is not important to know if they have arrived at their destination. UDP is commonly used in audio and video applications.

E. CONFIGURING NETWORK COMPONENTS

In the following sections, many of the key networking components are discussed that are likely to be considered in our network design process. Small and simple networks use only cables and network adapters attached to the computers and other devices. However, as the network grows in size and complexity, it needs other networking devices to tie everything together correctly.

1. Network Interface Card (NIC)

The network interface card (NIC) is a layer 1 device and is the only device on the network that is actually installed inside the machine. Workstations, servers, print servers, and gateways all have NICs. NICs provide the connection point to a network. Each type of NIC is specially designed for a specific type of network such as Ethernet, Token ring, FDDI, or ARCNET. Newer NICs usually have RJ-45 connectors on them. A standard NIC would be a 10/100 Mbps PCI Ethernet card with an RJ-45 connector. Windows 95/98/ME and Windows NT 4.0 will auto detect most NICs. Before installing the card it is important to ensure that the latest driver is installed on the machine.

2. Hubs

A hub is a layer 1 device that repeats a signal to all the hub ports that can connect to network segments or devices. A hub may have as few as 4 ports, 8 ports, 12, or 24 port models. The unit has female RJ-45 connectors on the front that may attach directly

to a computer by means of CAT 5 cable or it can attach to a patch panel with an RJ-45 patch cable. The connectivity with other devices is indicated by a link light at the front panel of the hub. A popular 10/100 autosensing Ethernet hub supports legacy systems and provides growth for greater speed. Hubs are a critical component in most networks, so we need to safeguard them to avoid network down time. In networks containing more than a couple of nodes, it is best to install the hub devices out of the way, preferably in a wiring cabinet or closet.

3. Switches

A switch is a layer 2 device that separates a network into segments. It is essential for large Ethernet networks because it eliminates the collisions that are frequent with shared networks. Switches support hierarchical network designs and can connect different architectures. A switch repeats data but, unlike a hub, only to the recipient/port specified by the MAC address.

In a campus area networks, each device (end system) connects to a workgroup switch over a point-to-point CAT-5 UTP cable and shares the media with any other device. This allows for a full-duplex connection between the switch and the device. Workgroup switches are hierarchical in design. They are connected to individual workstations and also to a large enterprise switch. This large enterprise switch connects to Servers and to the WAN via the router. A switch can segment a network into its ports, and forward the packets between those ports at the same time (simultaneously).

4. Routers

The router is used to connect to remote offices or the Internet and is installed as a device on the network. An Internet router is usually the gateway address in the TCP/IP

protocol parameters. It is an OSI layer 3 device that routes packets to the proper destination on the basis of the destination network address in the packet. A router will have one or more serial ports with a Channel Service Unit/Data Service Unit (CSU/DSU) connected to it and one or more LAN ports connected to a switch or hub. A router is configured with the local subnet address information and the address information of the router to which it is connected on the WAN port.

F. SELECTING A NETWORK OPERATING SYSTEM

There are several network operating system servers available, such as Windows NT 4.0 Server, Windows 2000 Server, Novell NetWare, and Windows 98/ME. Due to geographic separation of the organizational units and the high cost of training administrators, the capability to centrally manage the network is an important aspect of limiting the total cost of ownership. The advantages of using a Windows 2000 Server include increased flexibility, scalability, reliability, management capabilities and security. Migration to Windows 2000 provides a common operating system environment and meets the Indonesian Eastern Fleet recommendation on standardization.

Below are the features of network operating systems that are commonly used at the present time:

1. Windows NT 4.0 Server

Windows NT 4.0 Server is a full scale network operating system. Its robust security and management features make it a good candidate for medium and large size network environments, but it also requires the knowledge and the management of a network administrator.

Windows NT 4.0 Server is a genuine network operating system. Its services are especially optimized to give the best service for its clients and the Windows NT 4.0 Workstation can be used as a client side operating system. Windows NT 4.0 Server was designed from scratch to perform the roles of a real network operating system with features like preemptive multitasking, multiprocessing, multiplatform support, secure file systems and fault tolerance. A window NT 4.0 Server machine can play many roles in a network. It can be a file server, a database server, or a web server. It performs all of these duties with great success. Windows NT 4.0 Server's minimum hardware requirements are Intel Microprocessor 80486 or higher, 120 MB disk storage, 16 MB memory, and a VGA display or higher resolution. It also can support three kinds of Reduced Instruction Set Chips (RISC) microprocessors. These are MIPS, Digital Alpha, and Power PC Alpha with 150 MB minimum disk storage, 16 MB memory, and a VGA display or higher resolution.

2. Novell NetWare

Novell NetWare is a widely accepted network operating system that has started to lose market share against the Windows NT Server. Novell NetWare 5.1 is specially designed for organizations that need a cost effective and reliable network operating system. In the file server role, it is accepted as the fastest server available for medium to large networks, but it only runs programs written for Netware.

The minimum hardware requirements for Novell NetWare are a 486 Based PC or above, 64 MB RAM, and at least 200 MB of free hard disk space.

3. Windows 98/ME

Windows 98/ME is not designed to perform a server role but its rich network features make it very suitable for small-scale network environments. It also can handle 32-bit applications. Unfortunately, however, features like overhauling system security, multi-user environment support, and secured file system structures are weaker than the other operating systems. Windows 98/ME minimum requirements are 486/66 MHz based Computer/Processor, 16 MB of memory (RAM), 225 MB of available hard disk space, and a VGA or higher-resolution display.

4. Windows 2000 Server

Windows 2000 Server is the newest version of Windows NT. Windows 2000 Server delivers powerful, comprehensive management services for managing the servers, networks, and client systems. Windows 2000 Server has an interoperability with existing systems by providing migration paths from any number of existing systems, devices, and applications. The minimum system requirements for Windows 2000 Server are as follows:

- 133-Mhz Pentium or higher central processing unit (CPU)
- A maximum of four CPUs per computer are supported
- 256 MB of RAM recommended minimum
- 128 MB of RAM minimum supported
- A hard disk partition with enough free space to accommodate the Setup process. The minimum amount of space required is 1 GB·

Windows 2000 Server comes along with Active Directory, an Internet standards-based directory service that uniquely enables flexible policy-based management of systems. Active Directory is a directory service that is scalable, built from the ground up using Internet-standard technologies, and fully integrated at the operating-system level.

It allows a single point of administration for all published resources, which include files, peripheral devices, host connections, databases, web access, users, other arbitrary objects, services, etc [Microsoft, 1997]

Active Directory simplifies administration and makes it easier for users to find resources. Using Active Directory, hierarchical information structures can be built that make it easier to control such things as administrative privileges and also make it easier for users to locate network resources such as files and printers. Hierarchical information structures form a tree structure that reflects all organizational resources. Compared to Windows NT 4.0 that scales quite well up to 100,000 users, Active Directory can scale up to over one million users in a single domain by using indexing technology and advanced replication techniques to speed performance.

G. DATA BACKUP SYSTEM

The network administrator is responsible for creating a backup plan which assures that the organization can easily recover data if data security is breached. There are three methods used for backing up data and files on a network. These are differential backup or incremental backup, copy, and full backup. A differential backup, also known as incremental backup or daily backup, is used to backup selected files when the content of a file has changed. The backup system reviews the date and time of the file, which indicates the last time the file was updated and compares it with the file. If they differ, then the backup system copies the file. Otherwise, the file is not backed up. A copy backup is used to back up selected files. A full backup copies all the files on a server regardless of whether they changed or not since the last backup. The network

administrator chooses the backup method based upon the efficiency of the backup schedule and the capacity of the backup medium.

All backup software modules must be installed on a server to guarantee the quality of backed-up data. The magnetic tape backup can be used as a common type to provide an effective backup system for our network. A magnetic tape backup is reliable, inexpensive, and has enough capacity to backup the entire network on a single tape.

H. IMPLEMENTING THE NETWORK

1. Standardization

One of the most important aspects of implementing our LAN infrastructure is planning. It is necessary to ensure that every aspect of the implementation has been addressed. Implementation of the Indonesian Eastern Fleet LANs infrastructure begins by establishing standard network architecture to achieve compliance with the Indonesian Eastern Fleet network requirements, compatibility with the naval main bases and fleet units, and to establish an effective and highly reliable network. A standard architecture is needed to provide direction for information technology managers and to define the Indonesian Eastern Fleet information technology strategy.

The IEEE 802.3 Ethernet Network architecture, using Fast Ethernet (100 Mbps) technology, is designed to be implemented on the Indonesian Eastern Fleet's LANs infrastructure. The standardization of network architecture is a critical aspect to implementing an integrated network that is interoperable with other Indonesian Navy networks or with other branch services networks.

Ensuring hardware compatibility is important because each piece of hardware on the network must be able to communicate with other hardware on the network.

Minimum hardware requirements represent values that are sufficient only to allow the system to start. To obtain the best performance out of our network, the appropriate hardware compatibility that meets the Indonesian Eastern network's requirements and allocated budget needs to be determined.

2. System Administration

There are three parts of IT support that make our information technology systems success: network operations, system administration, and install/configure/troubleshoot categories. IT support for information systems is a large part of the life cycle costs.

System administration in the Indonesian Eastern Fleet network should conduct a network operations center for monitoring and controlling the operation of our wide area network, and providing reports for a distributed system. A network operations center is responsible for day-to-day operation of the WAN. This accomplished through the monitoring of online statistics including traffic patterns, congestion reports and data from SNMP clients. Many software packages exist which aid in the recognition of network problem areas.

The right choice in selecting a network operating system determine how well the network operation supports distribution and gathering information all fleet units. The implementation of centralized management by using Windows 2000 network operating system is key to improving the Indonesian Eastern Fleet network system. This one step forward in computer communication systems by implementing effective LANs will improve the Indonesian Eastern Fleet information technology systems.

For effectiveness and efficiency, the network operations center (NOC) should be established in the Indonesian Eastern Fleet headquarters LAN in Surabaya.

Centralization is a good strategy to support information systems to all fleet units. The network operations center manages the Indonesian Eastern Fleet wide area network to ensure its up and run properly. However, all other LANs should also have their own network administration unit in each LAN that managed by a local network administrator. We still need decentralization to manage and maintaining the network locally in each LAN. The synchronization between all LANs and the Indonesian Fleet NOC would provide good result in network traffic management as we will prove and evaluate in our network design using EXTENDv4 simulation software program.

The Indonesian Eastern Fleet NOC responsible for communication with the Internet Service Provider, telecommunication carrier company, and contractors in order to obtain and maintain the good quality of the network. By default the role of the NOC falls to the information technology unit coordinated with command, control and communication unit to always provide good service and network maintenance to the network users.

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V. WEB-BASED WIDE AREA NETWORK DESIGN

Local area network (LAN) is a convenient way to connect machines in a building or in a close proximity. Each location might have its own LAN, but these were isolated from the rest of the organization until someone figured out a way to connect them together into a wide area network (WAN). There are several transmission techniques that can be used, but the simplest is with a modem and a telephone line.

A WAN covers longer physical distances than a LAN. The WAN makes it possible to put the entire organization on the same network no matter how scattered its nodes. The network could be spread across a state, an island or around the whole country. Thus, it is possible for a military organization such as the Indonesian Eastern Fleet to put into operation their own wide area network tying together all naval units in the eastern territory of Indonesia. Implementing web-based technology on the WAN would greatly improve the efficiency of the Indonesian Eastern Fleet information systems.

A. REMOTE ACCESS SERVICE (RAS)

Remote Access Service (RAS) provides the capability of dialing into our network from a remote location, and acting as a remote node on the network. RAS is often referred to as Dial-up Networking, which communicates with other devices in the telecommunication system using modem at each end of the connection. Both a RAS client and a RAS server require their own modems. The RAS server modem answers a call from a RAS client modem to establish the remote network connection.

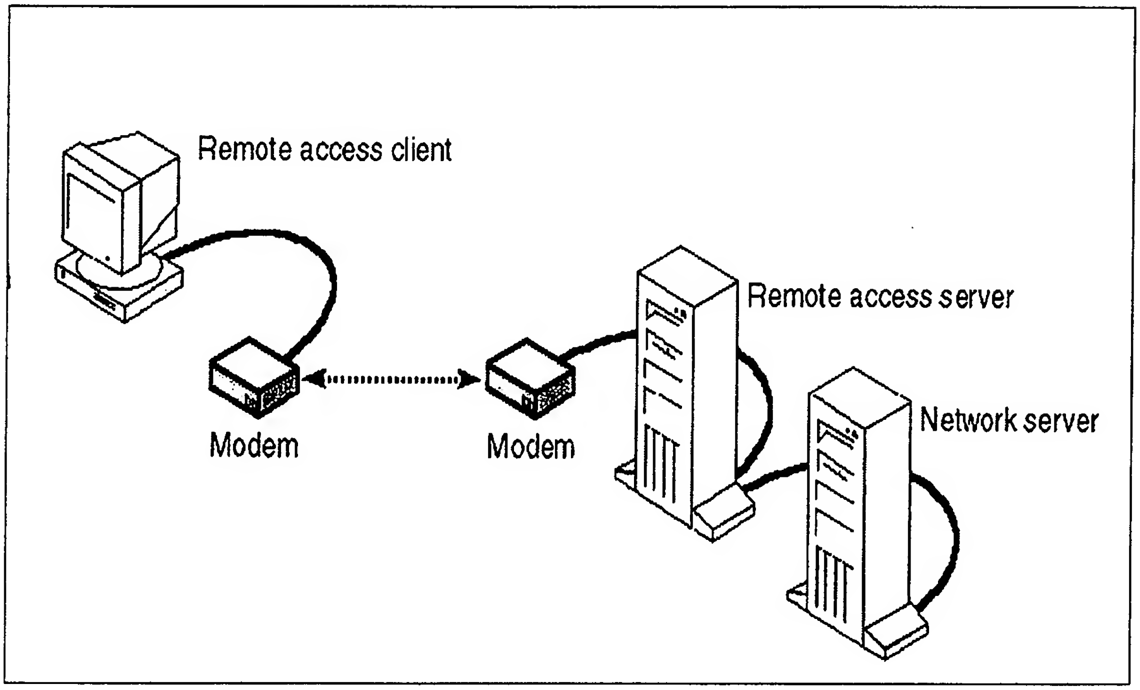


Figure 6. RAS Connection.

RAS supports three connection protocols: *Serial Line Interface Protocol (SLIP), Point-to-Point Protocol (PPP),* and *Point-to-Point Tunneling Protocol (PPTP).* SLIP does not support dynamic IP addressing or NetBEUI or IPX protocols, it cannot encrypt logon information, and it is supported only by RAS clients. PPP overcomes many of the limitations of SLIP. It supports the IPX, NetBEUI, AppleTalk, and DECnet protocols. It also supports encrypted passwords. PPTP provides a way to route IP, IPX, or NetBEUI point-to-point protocol packets over a TCP/IP network.

Using a RAS connection is not always the best choice to achieve network expansion. RAS is used if it is determined that our bandwidth requirements are not greater than 128 Kbps, if a dedicated full-time connection is not required, or if system costs must be kept down. It is not good to use RAS if a higher bandwidth is needed than

that provided by an asynchronous modem or if a dedicated full-time connection is needed.

Virtual private networking (VPN) enables us to securely access our network across the Internet. RAS is very expensive if long-distance is used for access, especially if access is needed for lengthy periods. If there is an account on the Internet using a national ISP that provides unlimited access via local phone, there is a way to securely transmit data over the Internet, and make it all seem as if our network was directly dialed into. It uses Point-to-Point Tunneling Protocol (PPTP) to encase the data in a secure tunnel and transmits it over the Internet to its destination site. Like RAS, VPN uses Dial-up Networking to establish the network connection. VPN can also be used over dedicated analog lines to maintain a permanent network connection to the Internet – and between our organization's websites.

B. CARRIERS

1. Analog Telephone lines

A modem is useless unless it can communicate with another component. All modem communication takes place over some kind of communication line. There are two types of analog telephone lines that can be installed as a modem's carriers for our network: *dial-up connection telephone lines* and *dedicated (leased) telephone lines.*

In *dial-up connections* each session requires that our modem dial a phone number to establish a new session. They are slow and can be unreliable for transmitting data. The quality (speed and reliability) of a session is only as good as the telephone network circuits connected for that particular session. The longer the distance covered by the connection, the less consistency seen in the quality from one dial-up session to the next.

However, for some organizations it may be practical to temporarily use a dial-up communication link between sites for a certain amount of time each day to transfer files and update databases.

Dedicated lines provide full-time, dedicated connections that do not use a series of switches to complete the connection. The quality of the line is often higher than the quality of a telephone line designed for voice transmission only. They typically range in speed from 56 Kbps to 45 Mbps or more. PT. TELKOM and PT. INDOSAT, Indonesian telecommunication state-owned companies, provide long distance connection across the sea to the entire country using a satellite system. A leased analog line is faster and more reliable than a dial-up connection. However, it is relatively expensive because the carrier is dedicating resources to the leased connection whether or not the line is being used.

2. Digital Lines

Organizations can turn to digital data service (DDS) lines when requiring faster and more secure transmissions than analog telephone lines provide. The primary advantage of digital lines is transmissions over them are nearly 99 percent error free. Digital lines are available in several forms, including DDS, T1, T3, and switched 56. Since DDS uses digital communication, it does not require modems. Instead, DDS sends data from a bridge or router through a device called a Channel Service Unit/Data Service Unit (CSU/DSU). This device converts the standard digital signals that the computer generates into the type of digital signals (bipolar) that are part of the synchronous communication environment. Either analog lines or digital line is a point-to-point links. We use circuit switching network (PSTN, ISDN) over these telecommunication origin

lines, and we use packet switching network (Frame relay, ATM,) over the T1 and T3 lines.

C. WIDE AREA NETWORK LINK OPTIONS

LANs are not adequate for all fleet units communications. There must be connectivity between LANs and other types of environments. Using components such as bridges and routers, along with communications service providers, a LAN can be expanded from an operation that serves a local area to encompass a wide area network. Most WANs are combinations of LANs and other communications components connected by communication links called WAN links. WAN links can include: packet-switching networks, fiber-optic cable, microwave transmitters, satellite links and cable television coaxial systems.

LAN connectivity and communications in an integrated WAN will involve one of the following transmission technologies:

1. Public Switched Telephone Network (PSTN)

Circuit Switching is used in telephone networks. In a circuit-switching network, a dedicated communication path is established between two stations through the network. Data generated by the source station are transmitted along the dedicated path as rapidly as possible. At each node, incoming data are routed or switched to the appropriate outgoing channel without delay.

The same network that our telephone uses is available to computers. One name for this network is the Public Switched Telephone Network (PSTN). PSTN is the most common communication service available in the world, including Indonesia. PSTN channel has W (bandwidth) = 4 Khz, S/N (Signal to noise ratio) = 30 dB or ratio 1000 : 1,

and C (maximum data rate) = 40 Kbps. The fact that the PSTN was designed primarily for voice-grade communication makes it slow. Dial-up analog lines require modems that can make them even slower. Since the PSTN is a circuit-switched network, the connection quality is inconsistent. Any single communication session will be only as good as the circuits linked for that particular session.

2. Integrated Services Digital Network (ISDN)

ISDN was the circuit switching that designed to be the digital successor to the existing public switched telephone network (PSTN). As a dial-up services, ISDN requires a basic monthly fee based on connect time or the volume of data transmitted. However, as computer and telecommunication systems improved, the telecommunication carrier cooperated with the Internet Service Provider (ISP) companies to provide the ISDN lease services. In that case, it is necessary to pay more than the regular dial-up ISDN service. ISDN is a standardized telecommunications network architecture providing multi-channel, integrated end-to-end connectivity. It is one of the concepts developed to answer the demands of universal services: transmission of voice, video, data, facsimile, image, and graphics information over digital channels.

Traditional data transmission uses a modem to convert data for the analog channel. With ISDN, digital data transmission does not need to be converted. An ISDN channel consists of 64 Kbps data channels (B=bearer) and 16 Kbps packet signaling channels (D=delta). Services are offered as a basic rate 2B+D (two B channels and one D channel), or a primary rate 23B+D (23 B channels and one D channel). ISDN is offer by Telkom Ltd., Lintas Arta Ltd., and Info Asia Ltd. in Indonesia using a transmission

data rate of 128 kbps, and transmitted through all over the country across the sea using satellite systems by Indosat Ltd. (state owned company).

3. T1 Line

T1 is the high-speed digital line that uses two-wire pairs (one pair for transmitting, and the other for receiving) to transmit a full-duplex signal at a rate of 1.544 Mbps. It can be used to transmit digital voice, data, and video signals. T1 line is made up of 24 distinct channels and samples each channel 8000 times per second. Using this method T1 can accommodate 24 simultaneous data transmissions. Each channel sample incorporates eight bits. Since each channel is sampled 8000 times per second, each of the 24 channels can transmit at 64 Kbps. This data rate standard is known as DS-0. The 1.544 Mbps rate is known as DS-1. DS-1 rates can be multiplexed to provide even greater transmission rates, known as DS-1C, DS-2, DS-3, and DS-4.

4. T3 Line

T3 is a digital leased line similar to T1, but it operates at much higher data rates. T 3 line is achieving data rates up to 45 Mbps. The cost of T3 line is much more expensive than T1 line. A T3 line represents a bandwidth equal to about 672 regular voice grade telephone lines, which is wide enough to transmit full motion, real-time video, and very large databases over a busy network. A T3 line is typically installed as a major networking artery for large corporations and universities with high volume network traffic.

5. OC-3 Line

OC-3 is the ideal solution for customers who seek ultra-fast connectivity for their mission-critical Internet needs. OC-3 connection line operates at 155 Mbps bandwidth

using fiber optic cable. This reliable, high-speed service is ideal for Internet Service Providers, large content providers, search engines, and Web hosting.

6. OC-12 Line

For the ultimate in high-speed connectivity, we can choose OC-12 service. Users obtain greater bandwidth flexibility with a 622 Mbps connection. OC-12 service allows customers to sustain numerous simultaneous users on their corporate Web sites and provides users shorter download times. Customers currently using OC-3 service can expand their bandwidth by simply upgrading to OC-12 service, rather than ordering multiple OC-3 lines.

7. OC-48 Line

OC-48 operates at 2.4 Gbps. OC-48 fulfills the growing need to service hand-offs in the backbone space with industry leading in-service velocity and reliability. OC-48 connection had robust reliability. It can be used to support a long distance intercity telephony trunks and as large campus backbone.

8. OC-192 Line

OC-192 delivers up to 9.6 Gbps of capacity, the highest fiber capacity commercially available in the marketplace. Having provided over 90% of the industry's 10Gbps multi-wavelength systems, OC-192 is the leading high-capacity optical networking system in the world. OC-192 delivers a virtually error free end-to-end bit error ratio of 10-15, a competitive edge for networks that carry mission-critical data traffic. OC-192 is the reliable connection line at the present time. This connection line is still not offer by network provider and telecommunication companies in Indonesia.

9. The Analysis of WAN Connection Options

The array of WAN connection choices available will be trimmed down based on our region and what services our telecommunications carrier provides. Once we know what is available, the selection boils down to our specific application and its cost. The issues behind WAN connection options are transmission data rate, capacity, and cost.

Analysis of the WAN connection options:

- PSTN. The cost of PSTN is very cheap. However, the reliability is very low compare with other services. PSTN connection service use modem communication and it is very slow.
- ISDN. This connection service operates fast enough to link all LANs in the Indonesian Eastern Fleet WAN effectively. The reliability is good; the network provider is responsible for transmission error. The cost is inexpensive and meets the network low cost requirement.
- T1 Line is more expensive compare to PSTN or ISDN but it is fast and reliable and can be used for connecting the Indonesian Eastern Fleet WAN effectively
- T3 Line is an advanced network connection technology that operates at 45 Mbps, much faster than T1 line. However, the costs is much more expensive than T1 line.
- OC-3 connection line is a high speed and secure service based-on fiber optic cabling system. High speed data transfer is possible due to the virtually unlimited bandwidth of fiber optic. However, this connection service is very expensive.
- OC-12 line is faster than OC-3. It operates on fiber optic cable at 155 Mbps. Fiber optic cable also makes our network secure and is considered to be virtually error free. The cost of this connection is more expensive.
- OC-48 line is much more expensive than OC-12 and operates at 2.4 Gbps. It is an emerging technology based on fiber optics. It is highly reliable but is very expensive.
- OC-192 is the newest connection line with a very high speed transmission. However, this connection line still not offered by the network provider in Indonesia at the present time.

The main goals in making technology choices for the Indonesian Eastern Fleet WAN design in this analysis are low cost, effectiveness, and efficiency. From the array

of analysis we come to conclusion that ISDN is the most appropriate choice for the Indonesian Eastern Fleet WAN design. ISDN meets the Indonesian Eastern Fleet network requirement for low cost, reliability, and capacity. We recommend that eventually, as finances permit, the Indonesian Eastern Fleet migrate to T1 Lines 1.544 Mbps for its WAN connection service. This fully digitized channel will answer the demands of multirate signal voice, data, video, image, and graphic information.

D. WAN CONNECTIVITY DESIGN

1. Connecting LANs to the Internet in a Packet Switching Network

A WAN is constructed from many switches to which individual routers connect. The initial size of a WAN is determined by the number of sites and the number of computers connected. The basic electronic switch used in a WAN is called a packet switch because it moves complete packets from one connection to another. A packet switch contains two types of input/output (I/O) connectors: one type is used for other packet switches, and the other is used to connect to computers. In packet switching, packets are relayed through stations in a computer network along the best route currently available between the source and the destination. Each packet is switched separately.

Wide area network interfaces are incorporated into remote bridges that are designed to provide an internetworking capability among all geographically dispersed LANs linked by a WAN. ISDN connection service links all LANs in the Indonesian Eastern Fleet WAN. The basic concept behind ISDN is end-to-end digital connectivity, or a completely digital signal all the way from the sender to receiver and vice versa. The Cisco 1003 ISDN router connects remote sites with Ethernet LANs to a WAN using ISDN at speeds up to 128 Kbps; with 4:1 data compression, raw throughput speeds up to 512 Kbps [Ref. Tittel, 1996]. The Cisco 1003 has a built-in ISDN Basic Rate Interface

(BRI) port, a 100Base T Ethernet port, a console port, and an external Personal Computer Memory Card International Association (PCMCIA) slot for a Flash ROM card. This plug-and-play product is designed to be installed easily by non technical personnel at remote sites. The Cisco 1003 ISDN router supports two software feature sets, based on the Cisco Internetwork Operating System (Cisco IOS). One set includes IP routing and transparent bridging. Both software sets support Point-to-Point Protocol (PPP), compression, dial-on-demand routing (DDR), and a host of other powerful features for optimizing WAN bandwidth and cost. Figure 7 illustrates the Ethernet Backbone and Internet Connection configuration for the Indonesian Eastern Fleet Network.

2. WAN Connectivity Plan

Figure 8 is a map of the eastern region of Indonesia in which all naval units of the Indonesian Eastern Fleet conduct daily sea operations to maintain sovereignty and law enforcement at sea. Figure 9 shows our "WAN connectivity plan" designed to link all Fast Ethernet LANs in the Indonesian Eastern Fleet network using ISDN connection service as an integrated web-based WAN.

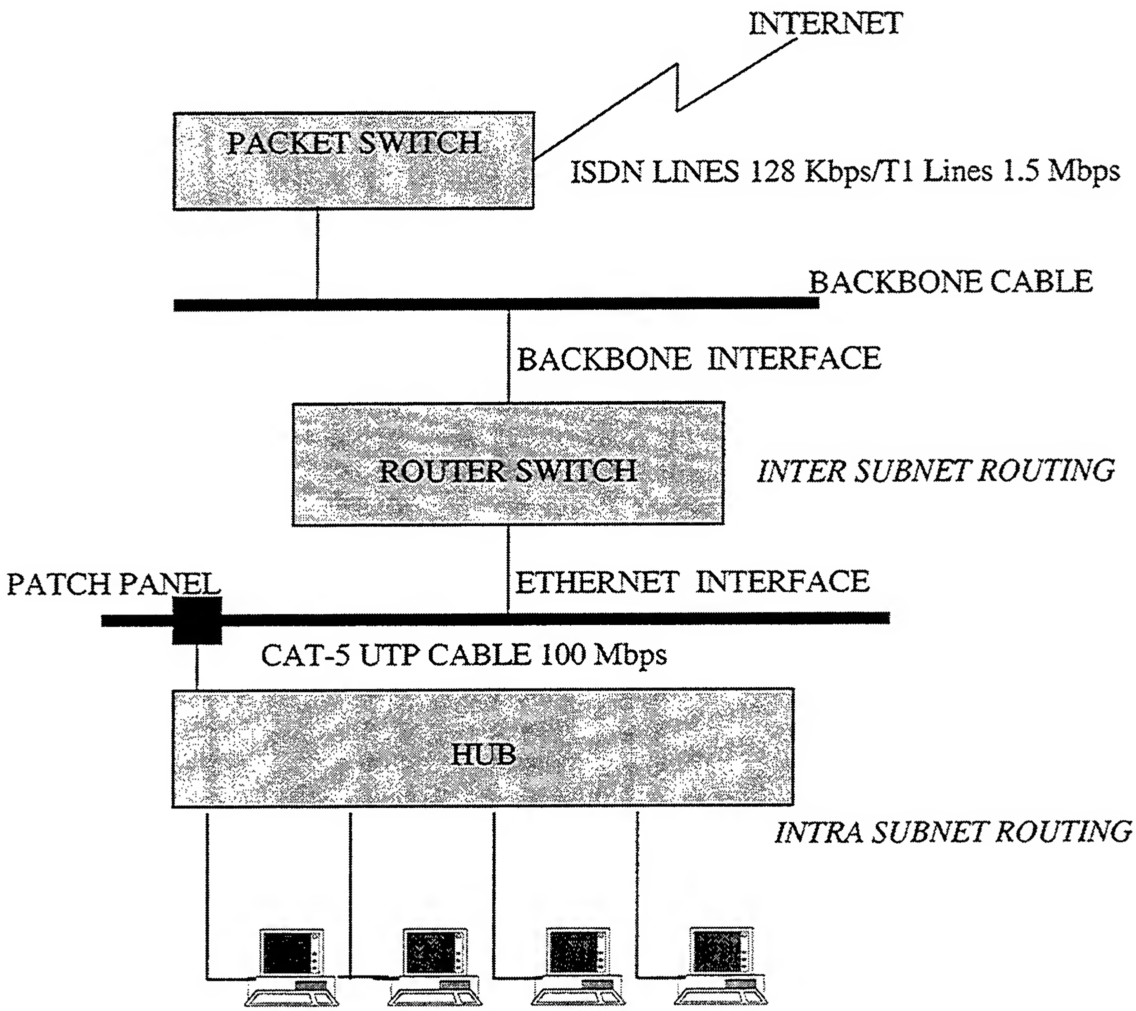


Figure 7. Ethernet Backbone and Internet Connection.

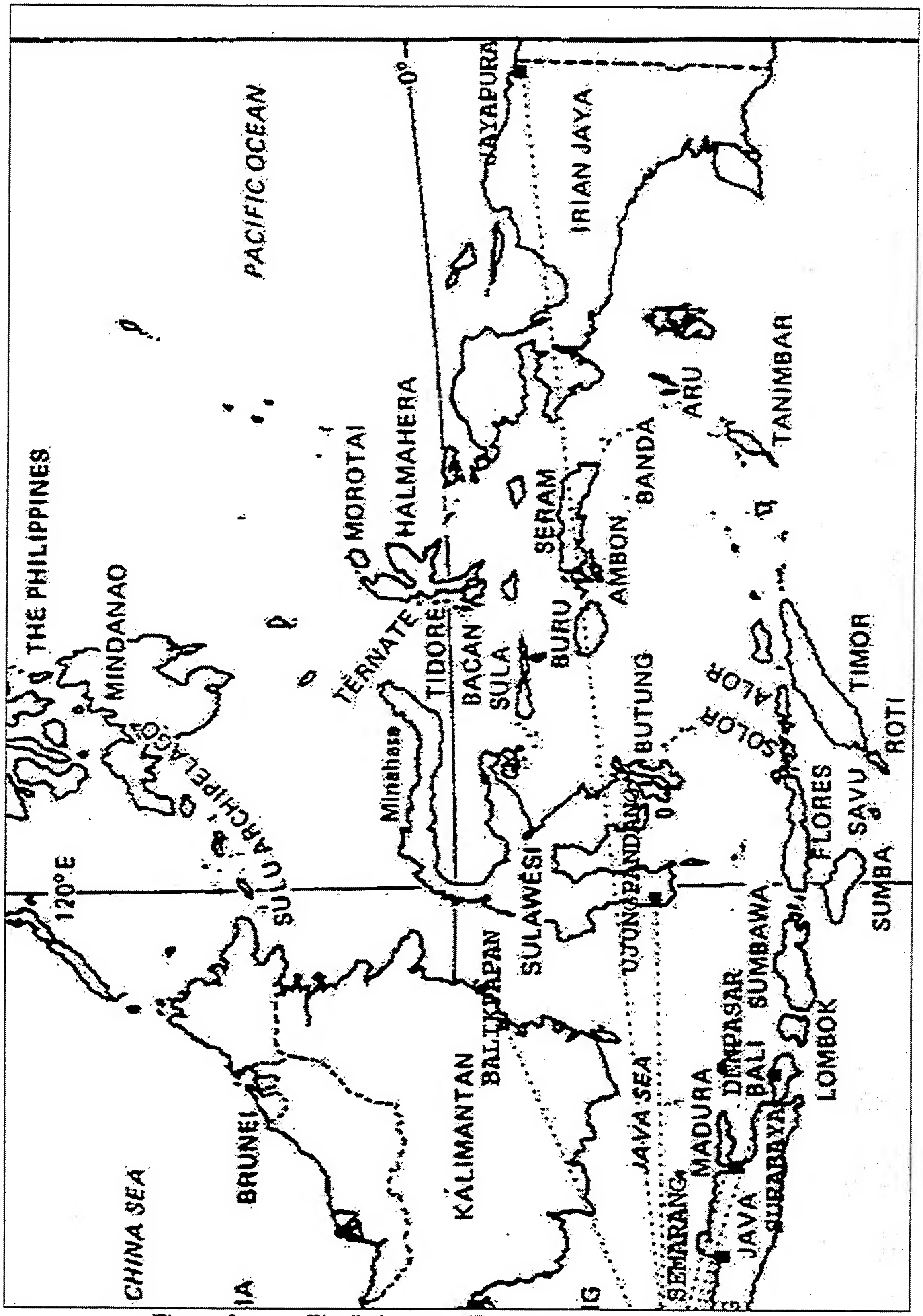


Figure 8. The Indonesian Eastern Fleet Regional Map.

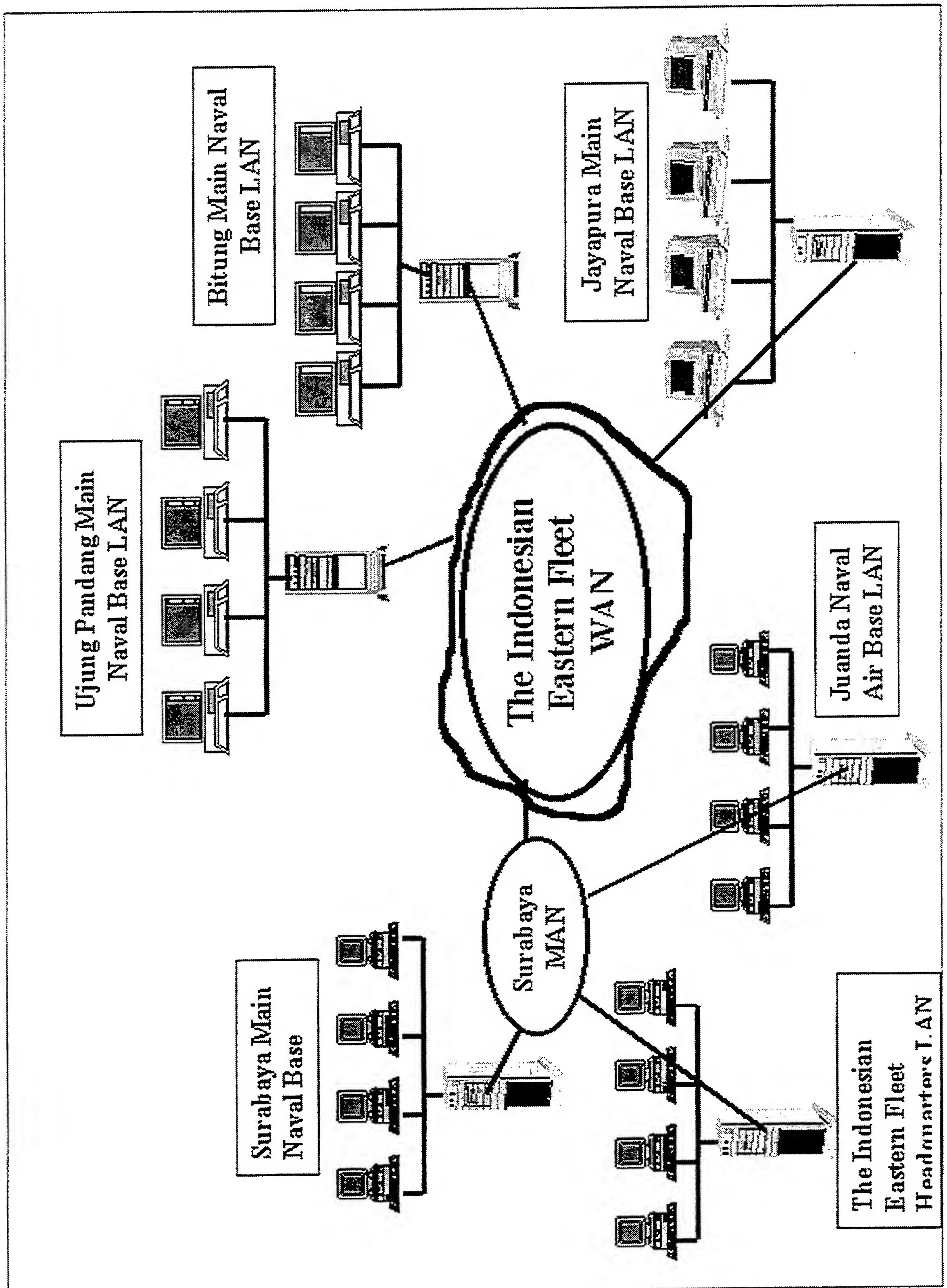


Figure 9. WAN Connectivity Plan

H. WIDE AREA NETWORK OPERATING SYSTEM

As mentioned in the previous chapter, Windows 2000 Server is the appropriate choice for the Indonesian Eastern Fleet's web-based WAN operating system. It integrates user's desktops with the Internet, thereby removing the distinction between the local computer and the Internet. Windows 2000 Server includes Microsoft Internet Information Server (IIS 5.0), a secure Web-server platform used to host Internet Web sites on network servers.

Windows 2000 Server ensures network security by authenticating users before they gain access to resources or data on a computer or the network. It provides local auditing for files, folders, printers, and other resources.

Networking and communication services are the main goals of the Indonesian Eastern Fleet network. Windows 2000 Server provides built-in support for the most popular network protocols, including TCP/IP and IPX/SPX. It provides dial-up networking, which lets mobile users connect to a computer running Windows 2000 with the capability of 256 simultaneous sessions.

I. WEB SERVER

Web servers make information available on a computer connected to the Internet, and web browsers show us information stored on a web server over the Internet. A web server receives requests for information from a client via the Internet and after processing these requests and checking their validity, retrieves or generates the desired information and transmits it back to the client. Every computer on the Internet that contains a web site must either have a web server or upload the web site files to a computer that has a web server.

1. Web Server Software

Most large network systems use an Apache server while the smaller systems primarily use Microsoft's Internet Information Server 5.0 (IIS 5.0). The Apache server delivers the ultimate in flexibility and extensibility. Its modular design allows a Web administrator to build an application-specific binary, especially for the requirements of that installation.

Considerations in choosing a web server include how well it works with the operating system, its ability to handle server side programming and publishing, search capability, and web site construction tools that may be included. The software to be used for a web server is closely related to the hardware platform that will host the web server. Microsoft provides IIS 5.0 bundled with Windows 2000 Server, which means that we do not have to purchase it as an additional software package. IIS 5.0 is a high performance web server containing many improvements compared with the previous IIS versions. In addition, IIS 5.0 provides performance application protection security enhancements. For these reasons IIS 5.0 is the most appropriate web server for the Indonesian Eastern Fleet network.

2. Web Browser Software

A web browser is a program that is used to view and to access web pages that exist on various web sites. The web browser has the job of processing received pages, parsing HTML code, and displaying the page to the user. The browser will attempt to display graphics, database tables, forms, formatted text, or whatever the page contains. The most popular web browsers now in use are Microsoft Internet Explorer, Netscape Navigator, and Mosaic. The types of computing platforms we use can influence the

selection of an appropriate browser. So, first we have to check the operating systems that run under the respective hardware platforms and the versions we need. Another consideration is the browsers' Java-capability. It is better to test web pages using multiple browsers to ensure the final output appears as intended.

3. Middle ware Network Protocol

A necessary aspect of setting up an Internet environment in a company is to select a specific protocol for use on the corporate network. The protocol that is widely used for Internet technologies is known as the Transmission Control Protocol/Internet Protocol (TCP/IP). This protocol can operate on Ethernet local area networks, on various Wide Area Networks (WANs), and even over standard telephone lines that are connected to a modem.

4. How Web Browsers and Servers Work

The basic task of a web browser is to retrieve a web page from a specific location in cyberspace then display the page according to the rules of HTML. The Uniform Resource Locator (URL) of a web page is its address on the net. Another program, known as a web server, is waiting at this address. When a user types a URL into a web browser, the browser "travels" to the address and "asks" the web server for the desired web page. If the server has the page, it "gives" it to the web browser via a TCP connection. The web browser then displays the page to the user. In the client/server programming model a server awaits and fulfills requests from client programs in the same or other computers. A given program (application) in a computer may run as a client which requests services from other programs and as a server of requests from other programs.

J. APPLICATION SERVER

There are some choices of application server such as IBM WebSphere Application Server 3.02, Oracle*9i* Application Server, Netscape Application Server and ColdFusion that commonly used at the present time. Application servers provide the foundation for integrating browser, server, and database technologies into web applications. It gives developers a tool for creating dynamic web applications and interactive sites.

ColdFusion uses a flexible server-side markup language that seamlessly integrates with HTML called ColdFusion Markup Language (CFML). CFML gives the ability to control the behavior of applications, integrate a wide range of server technologies, and generate the content that is returned to the web browser. When a page in a ColdFusion application is requested by a Web browser, it is automatically pre-processed by the ColdFusion Application Server. Based on the CFML in the page, the Application Server executes the application logic, interacts with other server technologies, and then generates an HTML page and returns it to the web-server. The web-server returns the page to the user's web browser.

IBM WebSphere Application Server is an e-business application deployment environment built on open standards-based technology. We can use Java servlets, JavaServer Pages and XML to quickly transform static web sites into vital sources of dynamic web content. IBM WebSphere Application Server offers qualities of service such as scalability, performance, security, and availability.

We also can build and modify web-sites and applications using Oracle9*i.* We can create personalized portals, manage and secure our website infrastructure.. Once our

Web site is deployed, Oracle9*i* Application Server has built-in reporting and ad-hoc query and analysis functionality to derive business intelligence. This enables us to make rapid and accurate decisions to improve operating efficiencies.

Considerations in defining an application server include how well it works with the operating system (Windows 2000) to meet the Indonesian Eastern Fleet network requirements in effectiveness and efficiency. One advantage of Cold Fusion is that a developer does not need to know any scripting language to be able to create effective Web database applications. The tags that start with CF prefix are Cold Fusion tags. The Cold Fusion Server handles these special tags. For the purpose of this network design the author suggest the Indonesian Eastern Fleet network use ColdFusion Server 4.5 Professional running on Windows 2000 Server with Internet Information Server 5.0.

K. DATABASE SERVER

IBM DB Universal Database, Microsoft SQL Server 2000, and Oracle Database are the widely used database server software in most corporate and organizations at the present time. Databases simplify the collection and maintenance of data and facilitate querying and displaying data in a wide variety of formats. Using tables, a lot of information that is related in simple or complex ways can be organized and managed.

Since we chose Windows 2000 Server as our network operating system, we can use Microsoft SQL Server 2000 as the database server software for the Indonesian Eastern Fleet network. SQL 2000 server has good support for Web standards and systems management. Microsoft SQL 2000 is robust and can be use properly in large or medium network such as in the Indonesian Eastern Fleet network. It also offers users an

XML environment and a data mining feature in Analysis Services which can be used to discover information in OLAP cubes and relational databases.

L. MANAGING THE WIDE AREA NETWORK USING WEB-BASED TECHNOLOGY

1. The Advantages of Using Web-Based Technology

The Internet is a global grid of networks enabling computers to directly and transparently communicate and share services throughout much of the world. Using a computer and an Internet Service Provider (ISP) connection, we can get access to the entire worldwide public data network without restriction. If we have the proper equipment on our computer, we can also provide information to the rest of the world. Web based information systems help unify all forms of documents, data, sound, pictures, movies, messages and computer applications in ways we never imagined before [Ref. Harler, 1999]

An effective and efficient network will provide reliable information systems as required to support the Indonesian Eastern Fleet operations. Web-based technology gives the advantages by providing efficiency to achieve the main goal of the Indonesian Eastern Fleet. Various operating systems are used in diversified Indonesian Eastern Fleet office units, including Windows 3.1/ 95/98/ME and Windows NT 4.0/Windows 2000. Using Web-based technology, a variety operating system can be linked together. Web-based technology is designed for use in a networked environment, containing desktop computers using various operating systems. It is device-independent and works well in a cross-platform environment. The main requirement is that the network supports TCP/IP communications.

Web-based technology can be used productively for improving communications between widely separated work groups-especially those that operate on interconnected LANs spread across the sea in the entire eastern fleet region. Connectivity is the key word in using web-based technology. Its ease of access provides the ability to get to key management sites from anywhere in the eastern region. The use of web-based technology makes it possible for the Indonesian Eastern Fleet to save money and operate their units more efficiently by letting widely dispersed desktop computers share mission essential resources.

2. Network Management

The main goal in managing the WAN is to control, monitor, and run the network in such a way as to insure its proper operation. We must attain a reliable end-to end service to ensure the network users share information and transfer data. Network management system are divided by the International Organization for Standardization (OSI) into five functional areas:

- Fault management
- Performance management
- Configuration management
- Accounting management
- Security management

Fault management is the function of detecting, isolating, and correcting faults in the system. The network manager has the ability to quickly detect problems and initiate recovery procedures. Fault management is very important because time is a critical factor in supporting information systems to all naval units via the network.

Performance management is the function of monitoring and controlling the system's resources. Managers have to monitor and control that the network has the capacity to accommodate users' needs using performance management tools. Performance can be measured by error rates, percentage utilization, overall throughput, and response time.

Configuration management is the function of manipulating hardware and software while still maintaining the system. It is the process of keeping in touch with all network devices. Configuration management helps the network manager to compare the running configuration with that stored in the system.

Accounting management is the function of tracking the system's resources and charging them to users. Accounting management gathers network statistics to help the network manager makes decisions regarding the allocation of network resources.

Security management is the function of protecting the system from human error, direct probing, subversion, penetration, and abuse of authority. It adopts proper encryption techniques and security logs.

The network manager is able to communicate with element of the network and monitor and control the running network by using network management protocols. The network management protocol most commonly used to manage a WAN is Simple Network Management Protocol (SNMP). SNMP is widely used and many vendors of network components design their products to support SNMP. It provides the tools needed to gain management information from the network, and is conform to the OSI seven-layer model. SNMP combines:

- Management Information Base = MIB. It is a database of configuration and statistical information on the network device. MIB collects all the objects that SNMP can manage.
- A Management station
- A management agent. The management agent is resident in the network components such as hubs, bridges, routers, and hosts, providing the management station with important information.

SNMP exchanges network information through messages (Protocol Data Units = PDU) that can be seen as an object containing variables with both titles and values. The operation of SNMP can be broken into three basic commands: *get, set,* and *trap*. These commands utilize the MIB to obtain and manipulate data pertaining to objects. *Get* allows a manager to obtain data from an object. *Set* allows a manager to change or update data from an object. *Trap* sends data automatically from an object to a manager when certain thresholds are exceeded. Through the use of MIBs, SNMP agents can be installed that allow managers to monitor specific objects. SNMP has the advantages of its simple design and ease to implementation in large networks.

Besides SNMP there are some other network management protocols such as Remote Network Monitoring (RMON), and Switch Monitor Management Information Base (SMON).

3. Web-Based Network Management

In order to use the WWW infrastructure for network management, Hyper Text Transport Protocol (HTTP) is used as an interface layer between the devices that use SNMP. HTTP servers provide information that can be retrieved by web-browsers using HTTP protocol. HTTP is a stateless information retrieval protocol based on a TCP/IP suite. The retrieved information can be specified in several formats including graphics, text, binary, and Hyper Text Markup Language (HTML). HTTP does not replace such

network protocols as SNMP. In order to manage network resources using HTTP it is necessary to have an application which speaks both HTTP and SNMP. This can be achieved in two ways by extending standard HTTP servers and creating a proxy application which allows it the issue of SNMP protocol requests using HTTP. It is relatively easy to implement since the HTTP server transparently handles the HTTP protocol. Existing character-based network management applications can easily become Web-aware since it is straightforward to enrich the textual output with HTML tags.

Web-based network management using Java is common and widely used at the present time. The Java management application programming interface (JMAPI) supports SNMP and is based around the Java programming language. It takes the advantage of the same extensions and capabilities of Java. It consists of a manager browser in the Network Management System (NMS), and an intelligent Java engine in the agent. The manager browser monitors and controls network elements in the network. The communication between the NMS and the agent is carried out by Java classes using TCP sockets.

Web-based Enterprise Management (WBEM) is another model that merges SNMP with HTTP. WBEM is an initiative based on a set of management and Internet standard technologies developed to unify the management of enterprise computing environments. It provides the ability for the industry to deliver a well-integrated set of standards-based management tools leveraging the emerging web technologies such as HTML and XML. WBEM facilitates the use of the same terms and formatting in management applications so that the applications can communicate and users can more

easily compare information from different application and devices. It comes with three elements:

- HyperMedia Management Protocol (HMMP): an object-oriented management protocol implemented on top of HTTP
- HyperMedia Object Manager (HMOM): a data model to incorporate different information sets
- HyperMedia Management Schema (HMMS): an object oriented data model for representing the managed environment

4. Implementing WBEM

The smoothly run wide area network is essential to the operation of the Indonesian Eastern fleet mission critical. We cannot tolerate a lot of down time occurred in our network system. Therefore, network management is a fundamental requirement of our network. The network management keeps our network devices up and running.

SNMP and the network management consoles including WBEM are useful tools. In order to implement WBEM in our network we have to have management agents reside in all network components. We can use HP OpenView to help us manage our network by giving a clear view of its components, including not only hardware such as routers and hubs, but SNMP objects such as applications and databases as well. We should create customized views to reflect our organization's information needs. Performance and trend reporting show us in real-time how our systems are performing. Using HP OpenView as a network management tool allows the management agents reside in the network components such as hubs, bridges, routers, and hosts. A management agent plays an important role in network management systems by providing the management station with important information. Our legacy gear such as radio transmitter would also have agents in them. Further, our telecommunication stuff such as ISDN switches would have

telco-proprietary management interfaces using the functionalities of HP OpenView network management tool.

The implementation of WBEM needs tools that identify and solve performance problem of our network. The tools must monitor, diagnose, trend and even predict server performance. HP OpenView delivers integrated tools to solve those performance problems. In addition to managing devices like routers, bridges, and hubs, the HP OpenView Extensible SNMP Agent allows us to manage applications, printers, users, and databases that are central to business success. Network managers can configure new SNMP objects without programming. With support of all types of management information base (MIB) objects, we can completely customize network and systems management to include objects that meet our needs.

Web-based network management systems using the functionalities of complex platforms such as HP OpenView allow managers to specifically obtain or manipulate the desired information by simply typing the required data sets. Web-based interfaces can supplement the network management system by allowing managers to access information in another format on top of such products as HP OpenView by simply selecting an option in OpenView's drop down menu.

The use of a web-based network management tool provides the ability to manage objects directly from a web-based management station. The web-pages are accessed via an ordinary web browser, such as Internet Explorer or Netscape Navigator, that interfaces with HP OpenView-Network Node Manager (HP-NNM). HP-NNM manages objects on the network and would feed the status of the objects via MIBs.

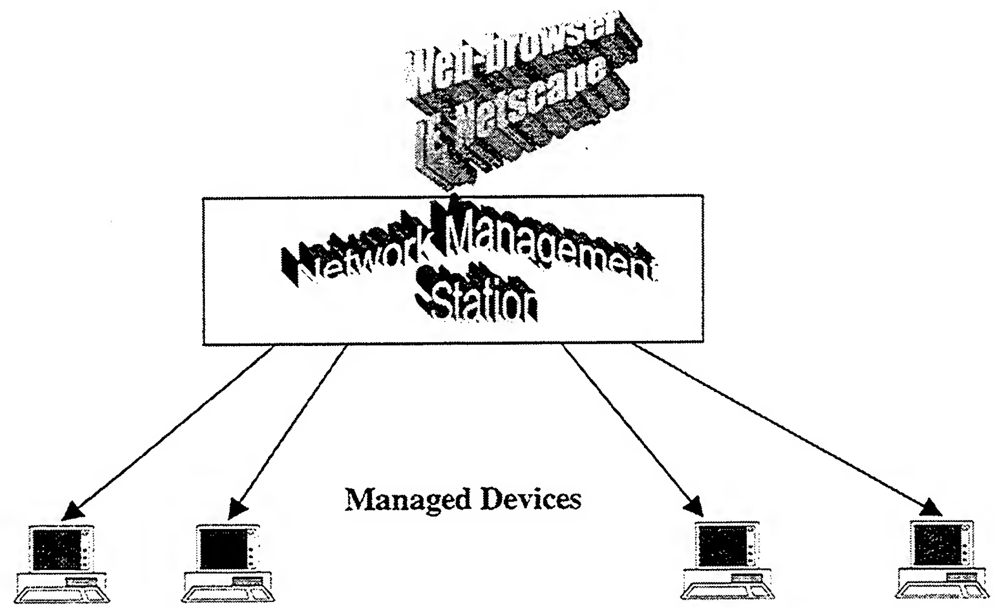


Figure 10. Web-based Network Management

By using "automated device discovery and layout" HP-NNM discovers TCP/IP and layer 2 devices on both LANs and WANs and presents this information in a graphical format. It continuously monitors the network for new devices and for the status of previously discovered equipment [Green, 1999]. It also has user interface based on Java™ that provides easy access to network maps and enables management of data from anywhere on the web. The purpose of its map is to illustrate the structure of the network and the status of devices and segments.

WAN connectivity can be achieved in a manner which optimizes economy and design. The management and maintenance of the Indonesian Eastern Fleet network is simplified through standardization. Simple Network Management Protocol (SNMP) clients and WAN management applications using HP OpenView are valuable tools to assist personnel in the management of a WAN. The web has emerged as a new paradigm in information access and display, becoming the preferred method for accessing

corporate data over the network. Web technologies can serve as an excellent infrastructure for simple and powerful tools to address the current problems of network management systems. Web-based tools can provide portability across platforms and a good framework for network management application architecture. Managing the WAN can significantly benefit from the use of web-based technology, such as easy-to-reach information, operation reuse, and consistency in presenting and accessing information and objects.

M. TRAINING PROGRAM

The site network administrators require training in network administration particularly in troubleshooting problem area. A clear path for troubleshooting and points-of-contact needs to exist and be understood by local administrators. The majority of network errors encountered throughout the implementation phase have been unrelated to WAN connectivity. This would reduce the burden of the WAN administrators.

Training program should be conducted in order to ensure the network always running well because its managing by the right personnel that has been trained properly. Network management needs the implementation of the process of using hardware and software by trained personnel to monitor the status of network components. They also monitor line facilities, question end users and carrier personnel, and recommend actions to alleviate outages and improve communications performance as well as conduct administrative tasks associated with the operation of the network. The training program for network administrators designed such a thing so that they knows the system's features and the functions and has knowledge about how to use and maintain the network management system.

Beside network administrators, the network operators also should be trained. Network operators responsible for operating the network in each LAN. They report the condition, status and operation of the network regularly to a network administrator. The trained network operators would recognize that WAN connectivity is exists or not.

People who will be trained should be the potential personnel that is required to support their unit organization and has a background in computer skills. The training program will take place in the computer training facility in the Eastern Fleet Training Command in Surabaya. Personnel that would be trained should be the military personnel from information technology units and also from command, control and communication units of each main naval base.

For network administrators, their ranks should be First Class Petty Officer until Ensign (E-6 until O-1). Windows 2000 MCSE certification exam should be used as a quality measurement for a network administrator and the training program should be executed based upon its syllabi. After completed the training these personnel are qualified as the network administrator which has a responsibility to maintain a set of procedures, software, and operations in order to keep a network operating near maximum efficiency. The success of any information system in each LAN depends on the skills of network administrators.

The ranks for network operators would be Third Class Petty Officer and Second Class Petty Officer (E4 and E5). The trained Second Class Petty Officer would responsible for operating HP OpenView tools. Their place of work would be in the Indonesian Eastern Fleet Network Operation Center in Surabaya. Third Class Petty

Officer would responsible for all network devices and they would be placed in each main naval bases LAN.

The qualification process is based on their experience and ability in computer communication systems. The selection process for network administrators and network operators personnel could bring an improvement to Navy's return of investment. This training program is a career cycle for all personnel that had been trained, not just once. The well trained personnel would have value added that support his job and promotion. Network management required complex and continuously program including training to provide the optimal solution in improving the Indonesian Eastern Fleet information technology systems.

VI. PROPOSED WAN DESIGN USING EXTEND-4 SIMULATION SOFTWARE PROGRAM

This chapter explores the use of modeling and simulation as a tool in designing and evaluating the Indonesian Eastern Fleet network system. The author has developed a wide area network (WAN) design model using an object oriented modeling and simulation tool called EXTEND-4 made by Imagine That, Incorporated. EXTEND-4 is used to measure specific performance variables in a quantitative fashion. It is an easy to use graphical simulation tool that allows a user to model complex discrete or continuous systems while varying performance parameters. EXTEND-4 makes it easy for the user to recognize and configure Graphical User Interface (GUI) icons with predefined properties that are adaptable to represent steps and links in a process.

A. ESTIMATING NETWORK TRAFFIC DATA REQUIREMENTS

The network traffic data requirements were used as a source to compute the flow of network messages all over the WAN for modeling and simulation. Each LAN in this network design uses Fast Ethernet 100BaseT LANs architecture that shares a network media 100 Mbps CAT-5 UTP cable. All LANs are linked by ISDN 128 Kbps WAN service and connected by the Cisco 1003 ISDN router. As the second alternative we use T1 line 1.5 Mbps to offer the best solution for network performance.

The messages are delayed in the Ethernet LAN by 100 Mbps CAT-5 UTP bandwidth, and in the wide area network by the WAN connection bandwidth. Currently the Indonesian Eastern Fleet network exhibits worst case delays of approximately 10 minutes. There is no set requirement on e-mail traffic; delivery within a few minutes is

desirable although a few hour delays are usually acceptable. Video is presently sent only within the headquarters LAN and delays are consistent with medium quality video. Data transfer delays are currently approximately 3 to 5 minutes going from one Indonesian Eastern Fleet LAN to another Indonesian Eastern Fleet LAN. Any new network must meet, or preferably reduce, these data latencies.

Network traffic involves email traffic volume, video conferencing network traffic, and data transfer traffic volume which are counted per one workday which is equal to 12 hours. The result of this sum in Mega bits is multiplied by 8, to convert to Mega bytes per day, and then divided by (12hours x 60 minutes x 60 seconds) to provide the result of message sizes in bytes per second that would be sent to destinations all over the WAN.

In this network model 45 computers are represented as one node. Thus, for example, the Surabaya main Naval base LAN that consists of 225 computers has a total of 225 nodes: 45 = 5 nodes. Network traffic for one node is the aggregated traffic of 45 computers. This simplification was done in order to keep the network model reasonably sized. There are total 24 origin nodes and 24 destinations in our WAN design. The detail lists are shown at the estimated network traffic data of the Indonesian Eastern Fleet WAN design as follows:

1. Surabaya Metropolitan Area Network (MAN)

a. Surabaya Main Naval Base LAN

- Ethernet LAN transmission data rate = 100 Mbps
- WAN Bandwidth using ISDN = 128 Kbps, using T1 line = 1.5 Mbps
- Total computers = 225
- Total nodes = 225: 45 = 5
- Email traffic volume = 26 Mbits per day
- Video conferencing network traffic = 2340 Mbits per 30 minutes per day

- Data transfer (text, image, graphic) traffic volume = 68 Mbits per day
- Average total traffic rate = 7040 bytes per sec

b. The Indonesian Eastern Fleet Headquarters LAN

- Ethernet LAN transmission data rate = 100 Mbps
- WAN Bandwidth using ISDN = 128 Kbps, using T1 line = 1.5 Mbps
- Total computers = 315
- Total nodes = 315: 45 = 7
- Email traffic volume = 40 Mbits per day
- Video conferencing network traffic = 2730 Mbits per 35 mnts per day
- Data transfer (text, image, graphic) network traffic = 96 Mbits per day.
- Average total traffic rate = 8290 bytes per sec

c. Juanda Naval Air Base LAN

- Ethernet LAN transmission data rate = 100 Mbps
- WAN Bandwidth using ISDN = 128 Kbps, using T1 line = 1.5 Mbps
- Total computers = 90
- Total nodes = 90: 45 = 2
- Email user traffic volume = 10 Mbits per day.
- Video conferencing network traffic = 1170 Mbits per 15 mnts per day
- Data transfer network traffic (text, image, graphic) = 24 Mbits per day
- Average total traffic rate = 3480 bytes per sec

2. Ujung Pandang Main Naval Base LAN

- Ethernet LAN transmission data rate = 100 Mbps
- WAN Bandwidth using ISDN = 128 Kbps, using T1 line = 1.5 Mbps
- Total computers = 180
- Total nodes = 180: 45 = 4
- Email user traffic volume = 20 Mbits per day
- Video conferencing network traffic = 1950 Mbits per 25 mnts per day
- Data transfer network traffic (text, image, graphic) = 50 Mbits per day
- Average total traffic rate = 5840 bytes per sec

3. Bitung Main Naval Base LAN

- Ethernet LAN transmission data rate = 100 Mbps

- WAN Bandwidth using ISDN = 128 Kbps, using T1 line = 1.5 Mbps
- Total computers = 135
- Total nodes = 135: 45 = 3
- Email user traffic volume = 15 Mbits per day.
- Video conferencing network traffic = 1560 Mbits per 20 mnts per day
- Data transfer network traffic (text, image, graphic) = 36 Mbits per day
- Average total traffic rate = 4660 bytes per sec

4. Jayapura Main Naval Base LAN

- Ethernet LAN transmission data rate = 100 Mbps
- WAN Bandwidth using ISDN = 128 Kbps, using T1 line = 1.5 Mbps
- Total computers = 135
- Total nodes = 135: 45 = 3
- Email user traffic volume = 15 Mbits per day.
- Video conferencing network traffic = 1560 Mbits per 20 mnts per day
- Data transfer network traffic (text, image, graphic) = 36 Mbits
- Average total traffic rate = 4660 bytes per sec

B. NETWORK MODELING AND SIMULATION

We use the blocks from the EXTEND-4 standardized libraries of process objects. These blocks are designed to facilitate the rapid development of simulation models of queuing systems by dragging and dropping them from the library to the model workspace. The three most-used libraries that come with the basic EXTEND-4 package are Generic, Discrete Event, and Plotter Libraries [Diamond, 1997]. The Generic Library is used for continuous modeling and the Discrete Event library is used for discrete event modeling. The Plotter library holds all the common types of plotters used in our models. Some of these plotters are specific to continuous or discrete event models, while others can be used with either. Models can be built to simulate discrete events or continuous flow problems. The different libraries that are built into the application are generally

application are generally designed specifically for one or the other. However, many objects within the libraries are interchangeable with either type of model

EXTEND-4 uses two main types of blocks in its simulation program: item blocks and attribute blocks. Item blocks receive and process discrete events or items that pass through them. Attribute blocks receive and process attribute values associated with items, although the items do not specifically transit through these blocks. The flow of the model is determined by the order of the connections between blocks of the model.

The actual moving of items between blocks is done through a messaging communication structure using item connectors and connections. This messaging system allows modelers to place blocks in a more intuitive sequence. Discrete event blocks send messages to each other during the course of a simulation run. These messages are used for communication regarding whether items are available, whether they have been taken, and whether a block is free to receive items.

In this network design, the blocks are grouped together as a hierarchical block and represented as custom blocks in the model workspace. A hierarchical block is unique. It has some characteristics of a block and some characteristics of a model worksheet. Hierarchical blocks have two windows: the layout pane window, which can be seen by double-clicking on a hierarchical block, and the structure window. The structure window contains another view of the layout pane, and we build a new hierarchical block or make changes to an existing hierarchical block's icon, connector position, and so forth. When a hierarchical block is opened by double-clicking on it, the layout of the submodel can be seen in the hierarchical window.

The first step in building the network model is to develop the model of each local area network (LAN). EXTEND-4 provides the blocks necessary to construct the LAN model using communications component logic that was built based upon the Carrier Sense Multiple Access/Collision Detection (CSMA/CD) Fast Ethernet LAN architecture using the CAT-5 UTP 100 Mbps cabling system. All LANs are linked up together as an integrated wide area network (WAN) using the ISDN 128 Kbps/T1 Line 1.5 Mbps. The model descriptions are intended to provide a basic working knowledge of the model.

1. Generating the Message

The messages for the network traffic come from the origin message hierarchical blocks in each LAN. Figure 10 shows the high level hierarchical block of messages originating at node 1, and Figure 11 shows detailed view or the layout of the submodel in the node 1 hierarchical window.

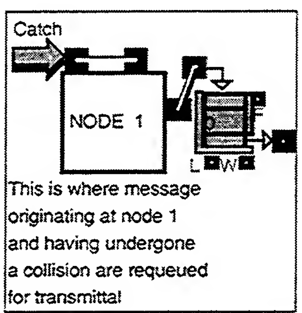


Figure 11. High Level View of the Origin Message Hierarchical Block

Node 1 represents the first 45 workstations at the Surabaya main Naval base LAN. The Surabaya main Naval base LAN has 225 computers that can be substituted to 5 nodes: Node 1, Node 2, Node 3, Node 4, and Node 5.

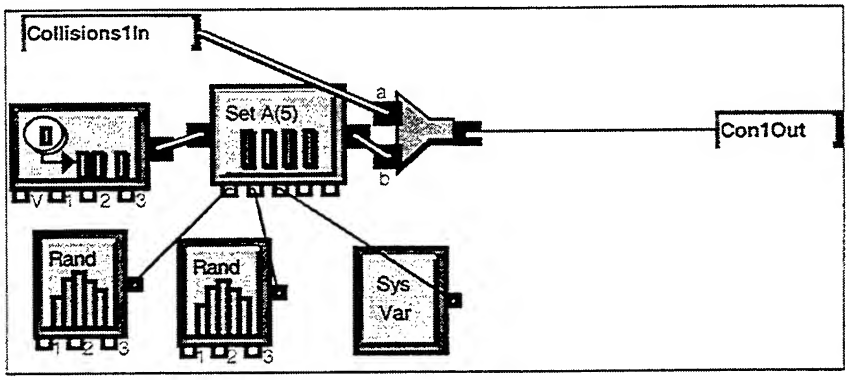


Figure 12. Detailed View of the Origin Message Hierarchical Blocks.

Each node generates messages that consist of e-mail, video conferencing, and data transfer with a certain amount of average message traffic rate already discussed in the previous section. The messages are generated by the "Generator" program block in these nodes with a certain message size that are defined by the Set Attribute program block. The generator provides items for a discrete event simulation at specified interarrival times. Each block has a dialog box that allows for customization of its performance parameters. The parameters for the distribution arrival times are set in the dialog box. At the first run of the Simulation, the exponential random distribution with frequency 1 second is used. For the second run of simulation, frequency 0.5 second is used. Figure 12 shows the generator program blocks and Figure 13 shows its dialog box.

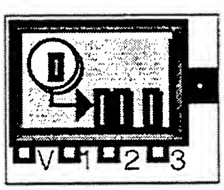


Figure 13. Generator Program Block.

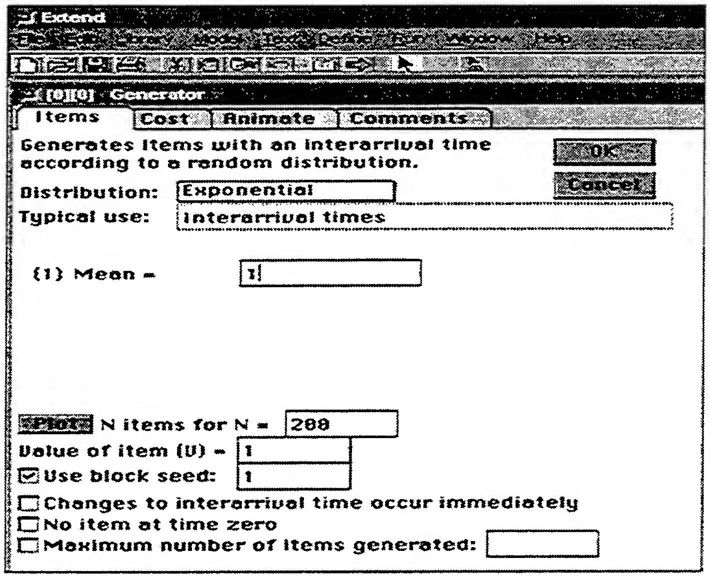


Figure 14. Generator Dialog Box

The "Set Attribute" block sets the specific attribute of items passing through the block. A "Get Attribute" block reads these attributes as the objects pass through the model, facilitating routing of the objects. Up to five attribute names and values may be assigned to an item with this block. The attributes may add to or replace existing item attributes. The amount of network traffic message size is specified with the value input connector at the dialog tab, and this is the message size that will be sent to all destinations over the network. Figure 14 shows the Set Attribute program block, and Figure 15 shows its dialog box.

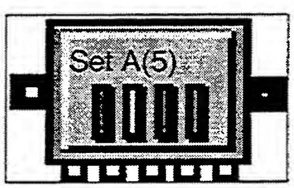


Figure 15. Set Attribute Block

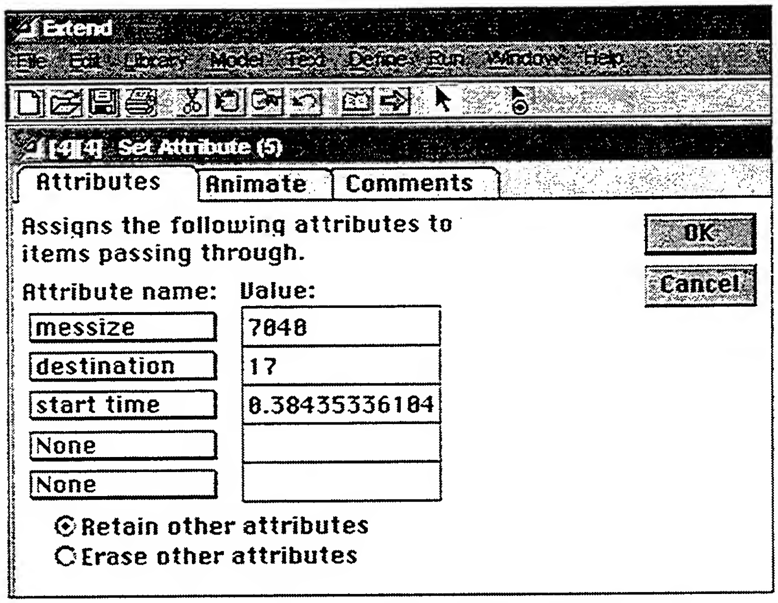


Figure 16. Set Attribute Dialog Box

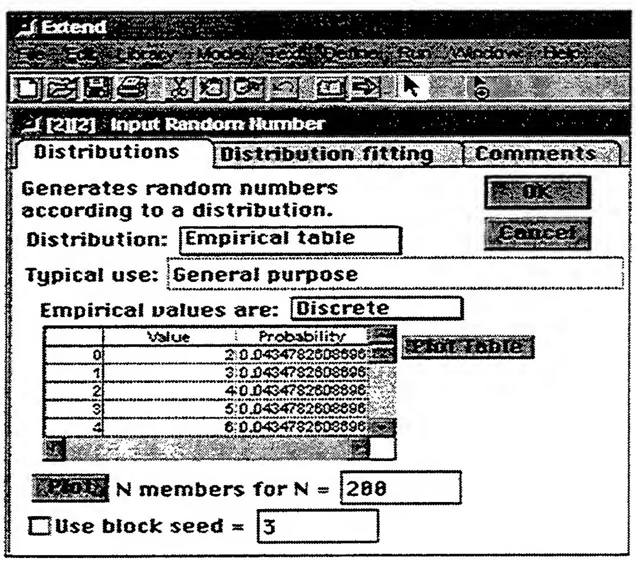
The probabilities of the messages that will arrive at each destination is set by the input random number block. The input random number generates random integers or real numbers based on the selected distribution. The type of distribution can be selected from among Uniform, Beta, Binomial, Erlang, Exponential, Gamma, Geometric, HyperExponential, LogLogistic, LogNormal, Negative Binomial, Normal, Pearson type, Poisson, Triangular, Weibull, and Empirical. [Diamond, 1997]

In our network design the type of distribution used is the “Empirical table”. All message’s destinations are appointed by its origin nodes. As mentioned previously, there are a total of 24 origin nodes and 24 destinations in the Indonesian Eastern Fleet WAN design that consist of the Surabaya main Naval base LAN = 5 nodes, the Indonesian Eastern Fleet headquarters LAN = 7 nodes, the Juanda Naval Air base LAN = 2 nodes, the Ujung Pandang main Naval base LAN = 4 nodes, the Bitung main Naval base LAN = 3 nodes, and the Jayapura main Naval base LAN = 3 nodes. Each node sends the

messages to all 23 destinations (not including itself) with a probability = 1 : (24 – 1) = 1 : 23 = 0.043478.

Figure 16 shows the Input Random Number program block, and Figure 17 shows its dialog tabs. The values of our message destinations are entered in the first column of the dialog tabs, and the probability (=0.043478) of that value is entered in the second column. The value column contains the various values that will be output. Probability describes the chance that value will occur. The probability only needs to have the proper values relative to each other, since Extend scales them automatically.

Figure 17. Input Random Number Block



. Figure 18. Input Random Number Dialog Box

2. Ethernet Bus

The messages are sent to the network via the Ethernet bus. Due to the 100 Mbps bandwidth (using Cat-5 UTP cable) the messages are delayed in the local area network

(LAN), represented by the activity delay program block. Each node senses the network and transmits only if the network is free.

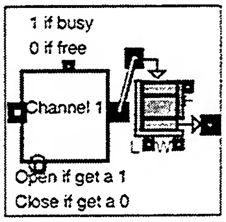


Figure 19. High Level View of the Ethernet Bus Hierarchical Block

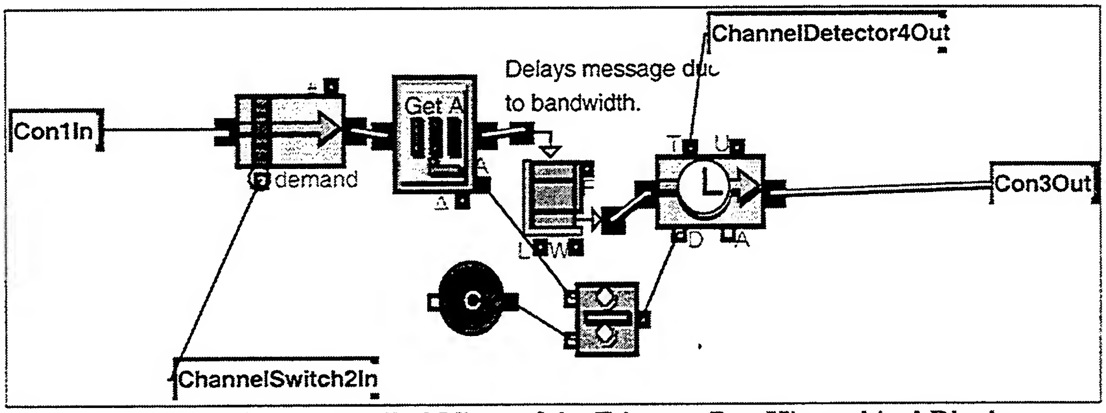


Figure 20. Detailed View of the Ethernet Bus Hierarchical Blocks

3. Initial Local Area Network Configuration

Message traffic generated from an origin node flows to the "first in first out" (FIFO) queue block (see figure 20), and then is sent to the Ethernet Bus in each channel where there is a sensor and detector to implement the channel access protocol of Carrier Sense Multiple Access with Collision Detection (CSMA/CD).

In the Ethernet bus (see figure 18 and 19) the messages pass through the activity service block. The *"Activity Service"* block acts as a gate. It passes an item only when the demand connector is connected and certain conditions exist at the demand input. This block serves as a conditional wait. It accumulates demand based on the values at the demand connector. When the demand input is 1 (greater than > 0.5) or when an item is pulled in at demand, the item input connector allows the items through

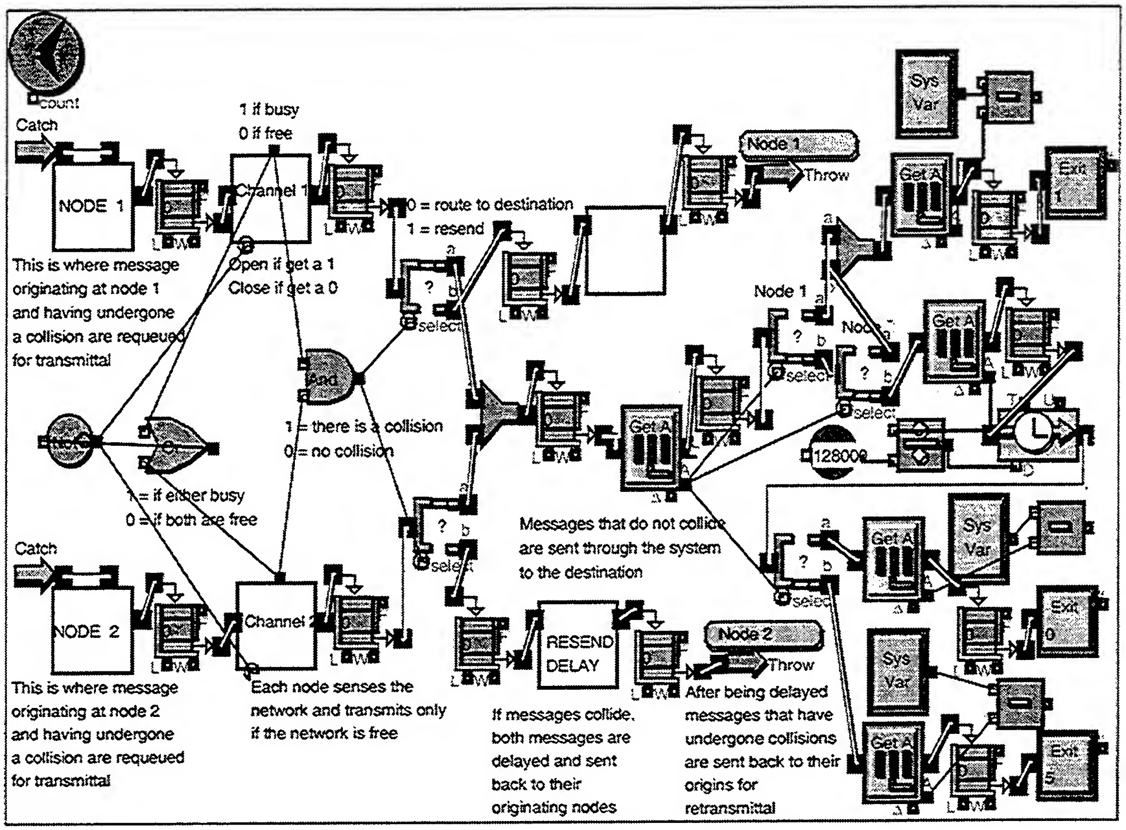


Figure 21. Initial Local Area Network Configuration

this block. If this is 0, the items will not be allowed through this block.

After passing through the activity service block, the message will come to the "*Get Attribute*" block. It displays attributes on items, then passes the items through. The attribute value is shown in the dialog and output at the A connector. As items are passed through the block, the block can either read or remove an attribute, and that attribute can be specified as the first attribute in the list or a named attribute. The name of the attribute to read should correspond to one of the names set in the Set Attribute block.

Whenever the Get Attribute reads the attribute "*message size*", the items in the Ethernet Bus continue flowing via the FIFO queue to the Activity delay. In the Activity Delay the message is delayed due to the bandwidth 100Mbps. If no collisions occur,

messages are sent to the combine block and continue to flow to the destination in the wide area network via the Cisco 1003 ISDN router. The CSMA/CD protocol is invoked to control all the different types of message transmissions.

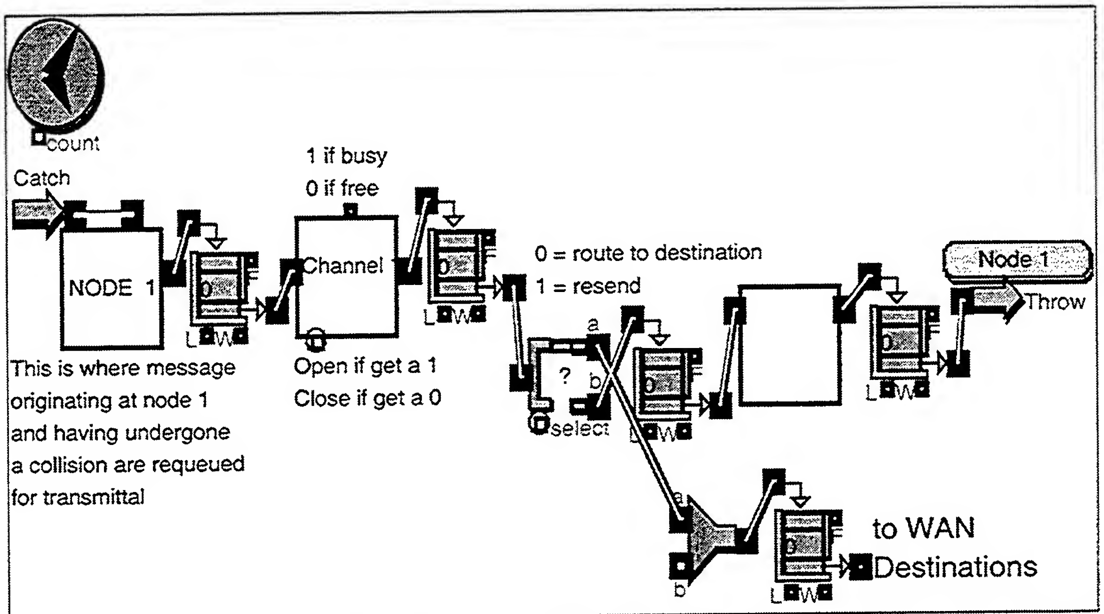


Figure 22. Flow of the Internal Messages within the Origin Node and the Ethernet Bus.

If there is a collision, messages are delayed and messages that have undergone collisions are sent back by the throw block to their origins for retransmittal. Figure 21 illustrates flow of the internal messages within the original node and the Ethernet bus in a local area network.

Internal messages must be sensed and detected. Both the sensor and detector work the bandwidth delay in the Ethernet Bus hierarchical block. If a message is being delayed, the sensor and detector will transmit the information.

The *"Select Discrete Event Output"* selects the input item to be output at one of two output connectors based on a decision. The item at the input is passed through the selected output. The dialog has options for changing the outputs after a given number of items have passed and selecting based on the select connector. The outputs are selected

based on the choices in the dialog. In this network design we define that if it is 0, messages will route to destinations in the network. If it is 1, a collision has occurred and the message has to be retransmitted.

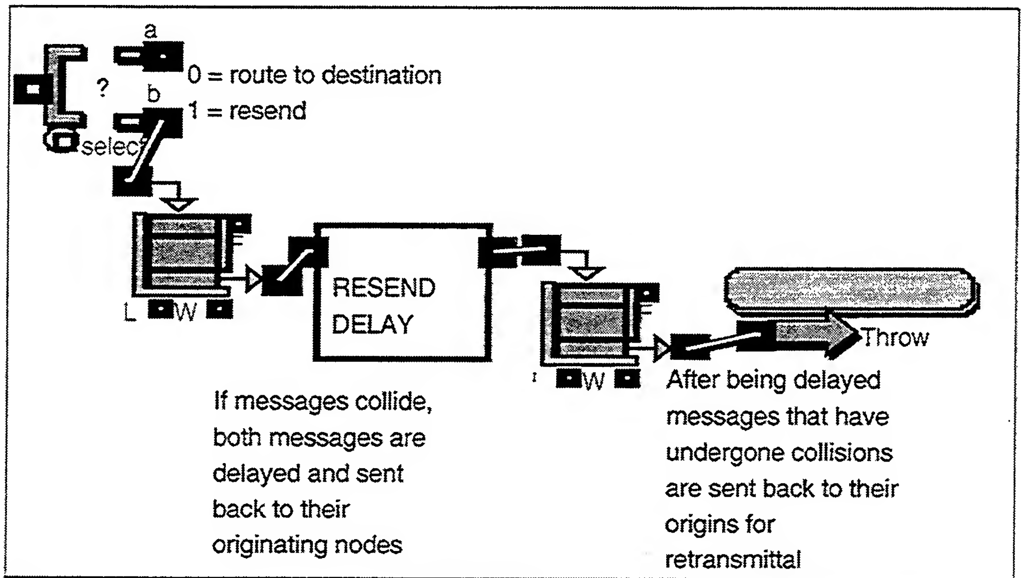


Figure 23. High Level Resend Delay Hierarchical Block

When messages collide, both messages are delayed and sent back to their originating nodes. A retransmitted message is resent to the identified catch block through the Resend Delay hierarchical block. Figure 31 shows the high level view of Resend Delay hierarchical block, and Figure 32 shows the detailed view of Resend Delay hierarchical block.

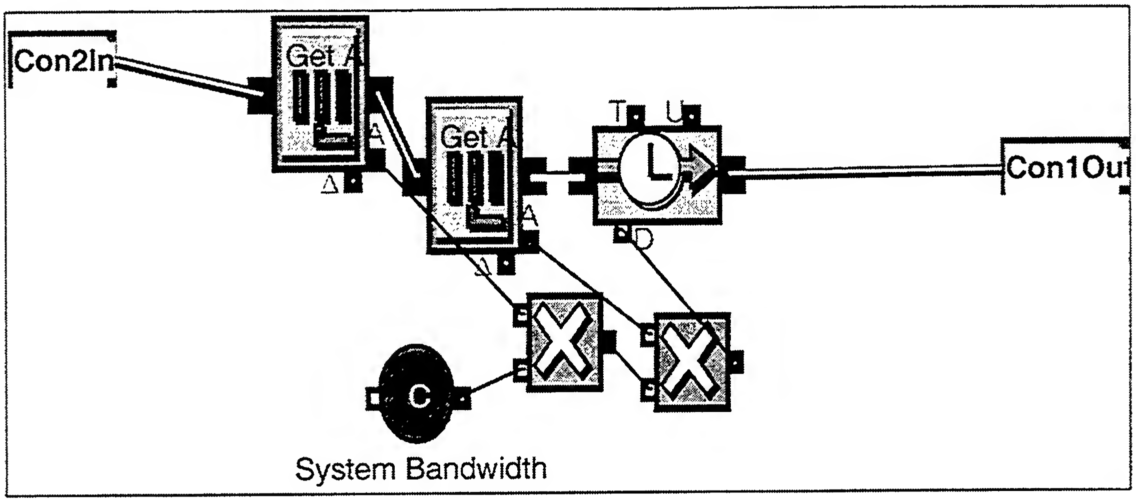


Figure 24. Detailed View of Resend Delay Hierarchical Block

4. Interconnecting the Indonesian Eastern Fleet Wide Area Networks

Each LAN can be consists of two nodes, three nodes, four, and so forth. Once LANs are created, they can be interconnected to construct WAN communication architectures of virtually any size. Next Figures show the Extend-4 simulation model workspace of the Indonesian Eastern Fleet WAN design that consists of:

- Figure 25 shows high level view of the Indonesian Eastern Fleet WAN design
- Figure 26 shows detailed view of Surabaya main Naval base LAN
- Figure 27 shows detailed view of the Indonesian Eastern Fleet headquarters LAN
- Figure 28 shows detailed view of Juanda Naval air base LAN
- Figure 29 shows detailed view of Ujung Pandang main Naval base LAN
- Figure 30 shows detailed view of Bitung main Naval base LAN
- Figure 31 shows detailed view of Jayapura main Naval base LAN

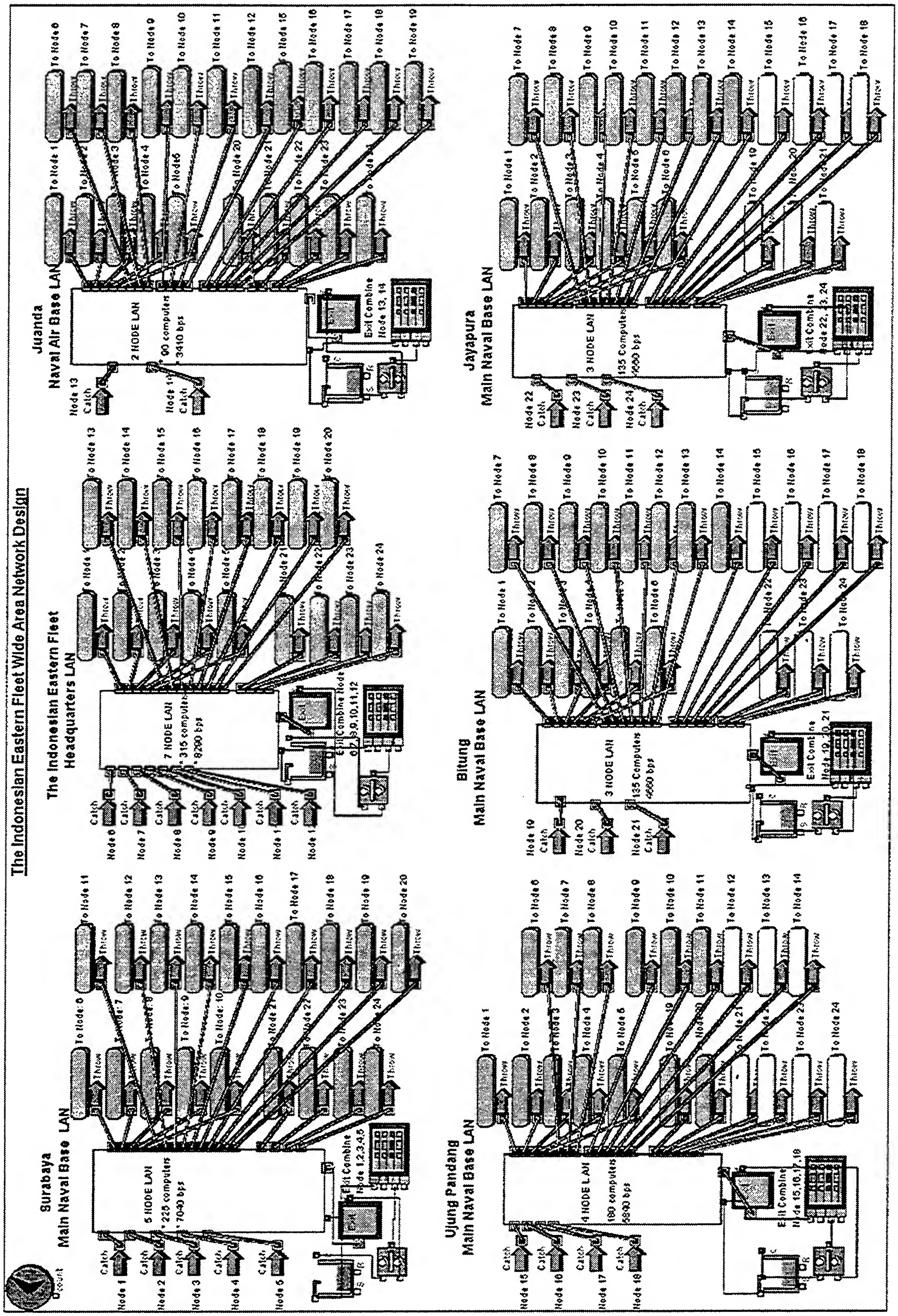


Figure 25. The Indonesian Eastern Fleet WAN design

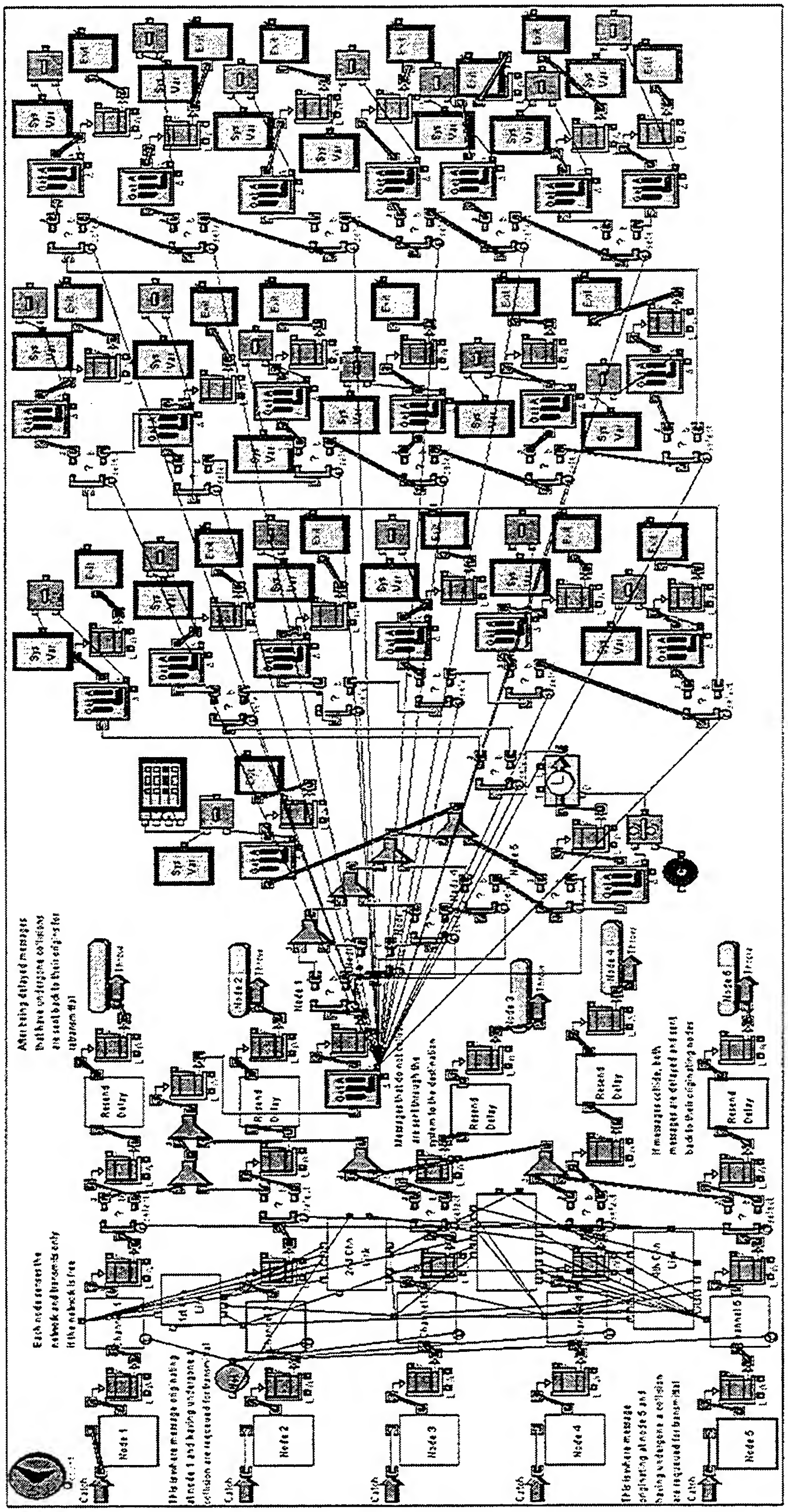


Figure 26. Surabaya Main Naval Base LAN

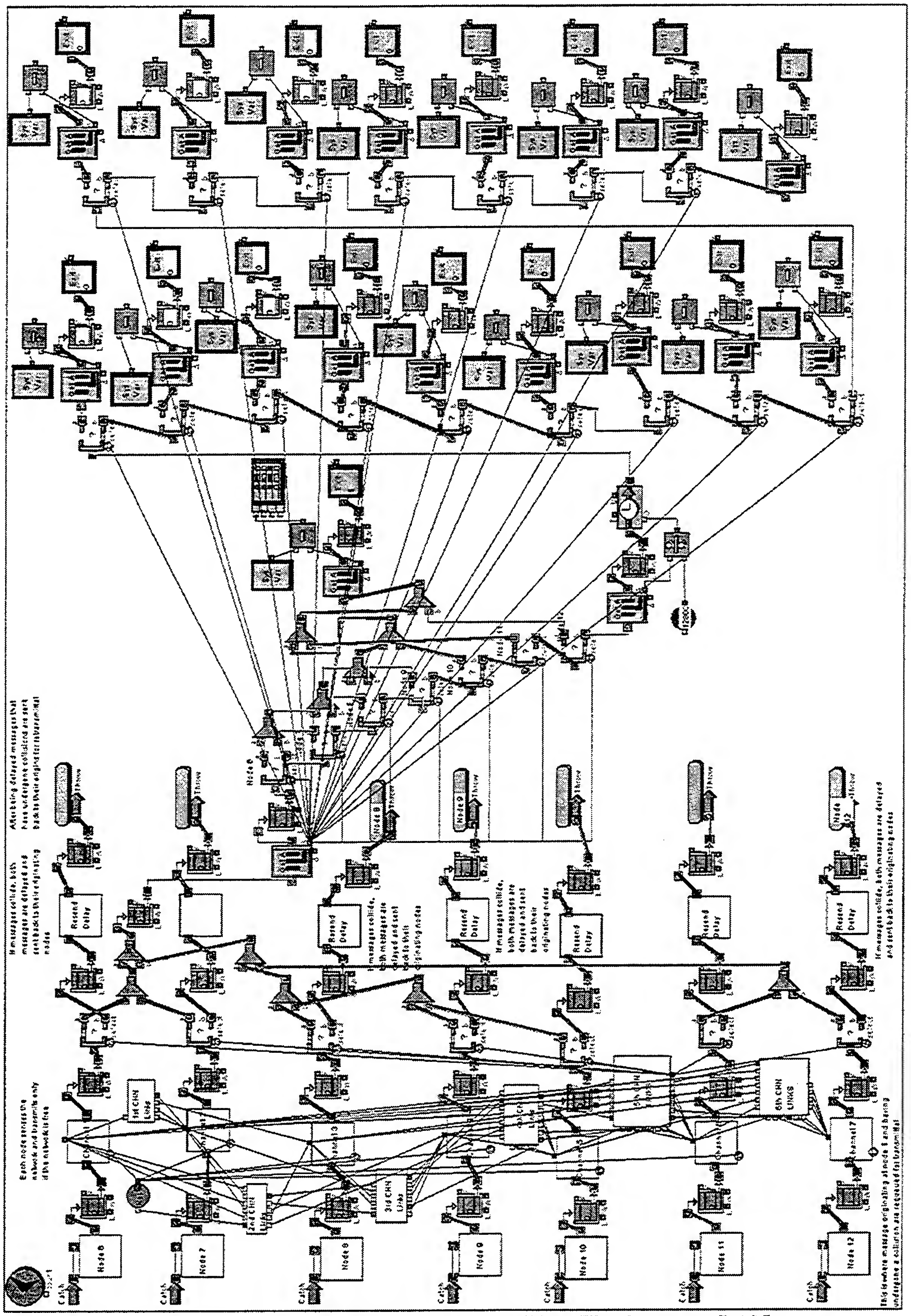


Figure 27. The Indonesian Eastern Fleet Headquarters LAN

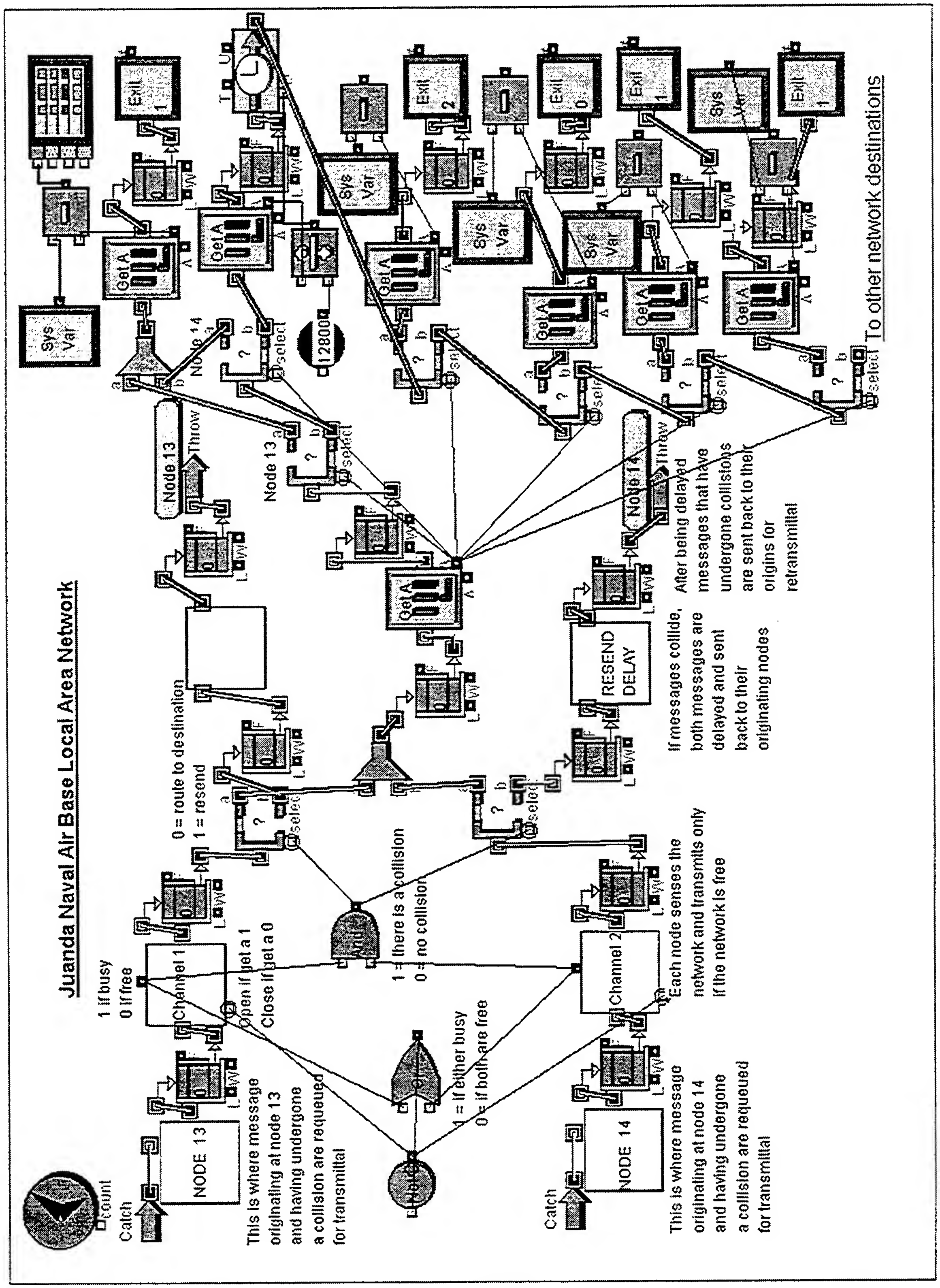


Figure 28. Juanda Naval Air Base LAN

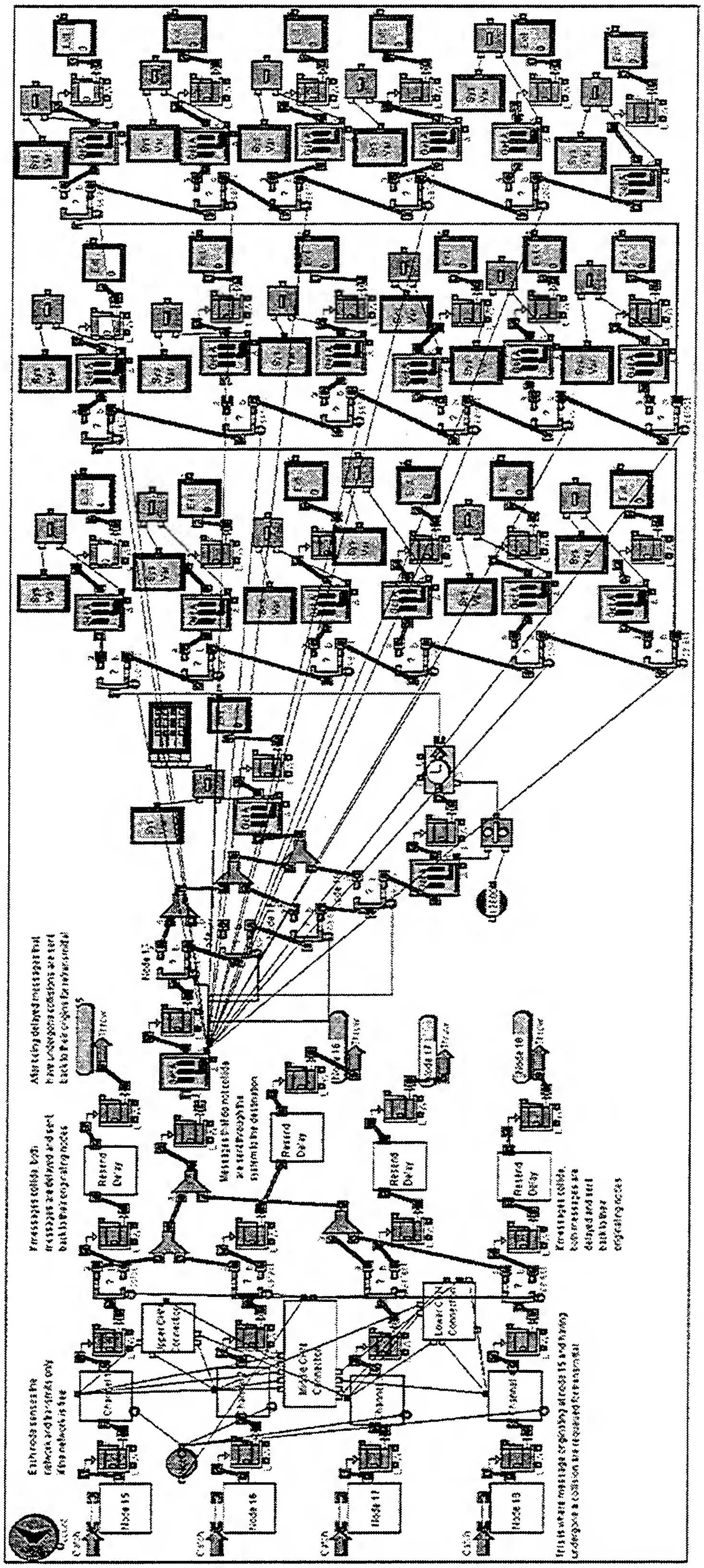


Figure 29. Ujung Pandang Main Naval Base LAN

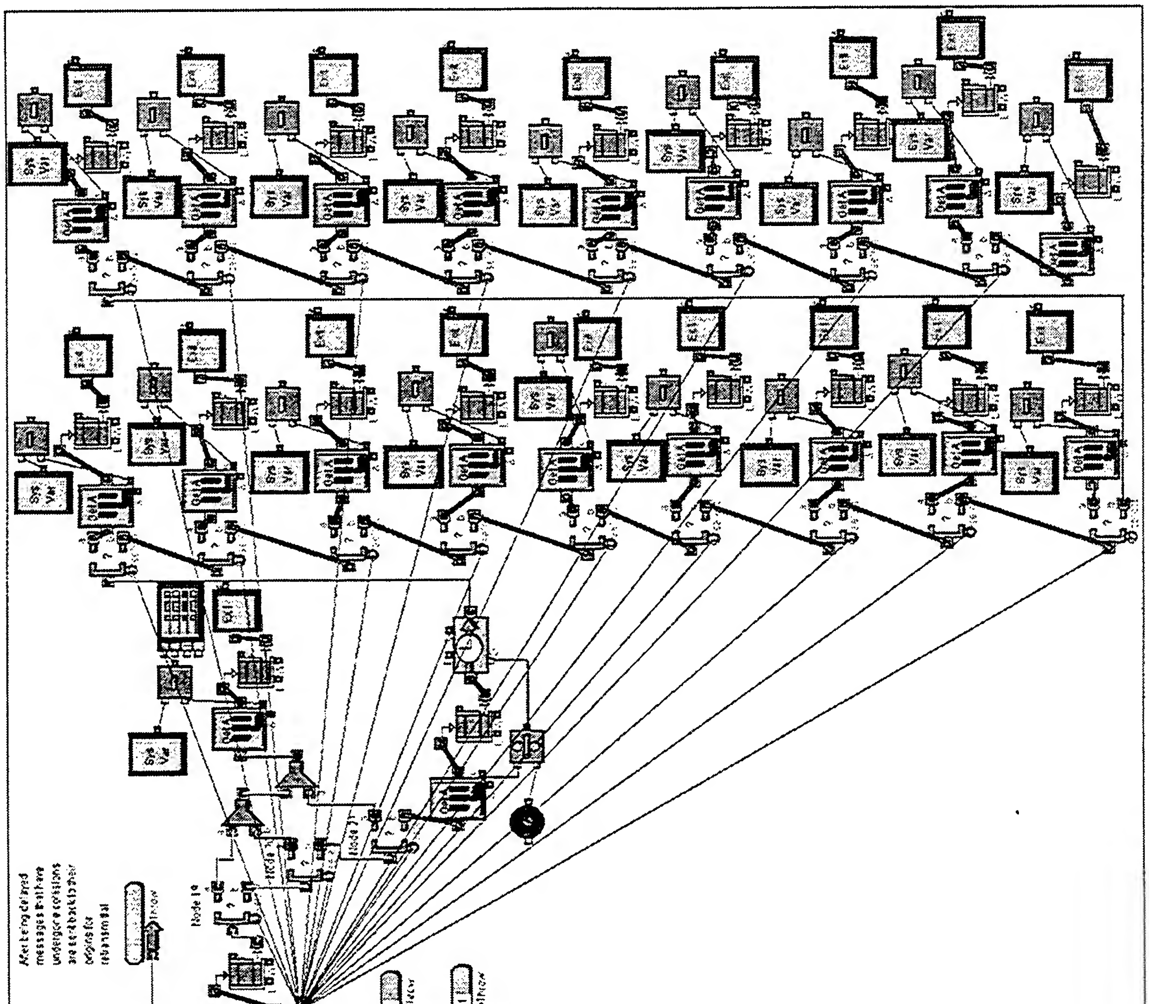


Figure 30. Bitung Main Naval Base LAN

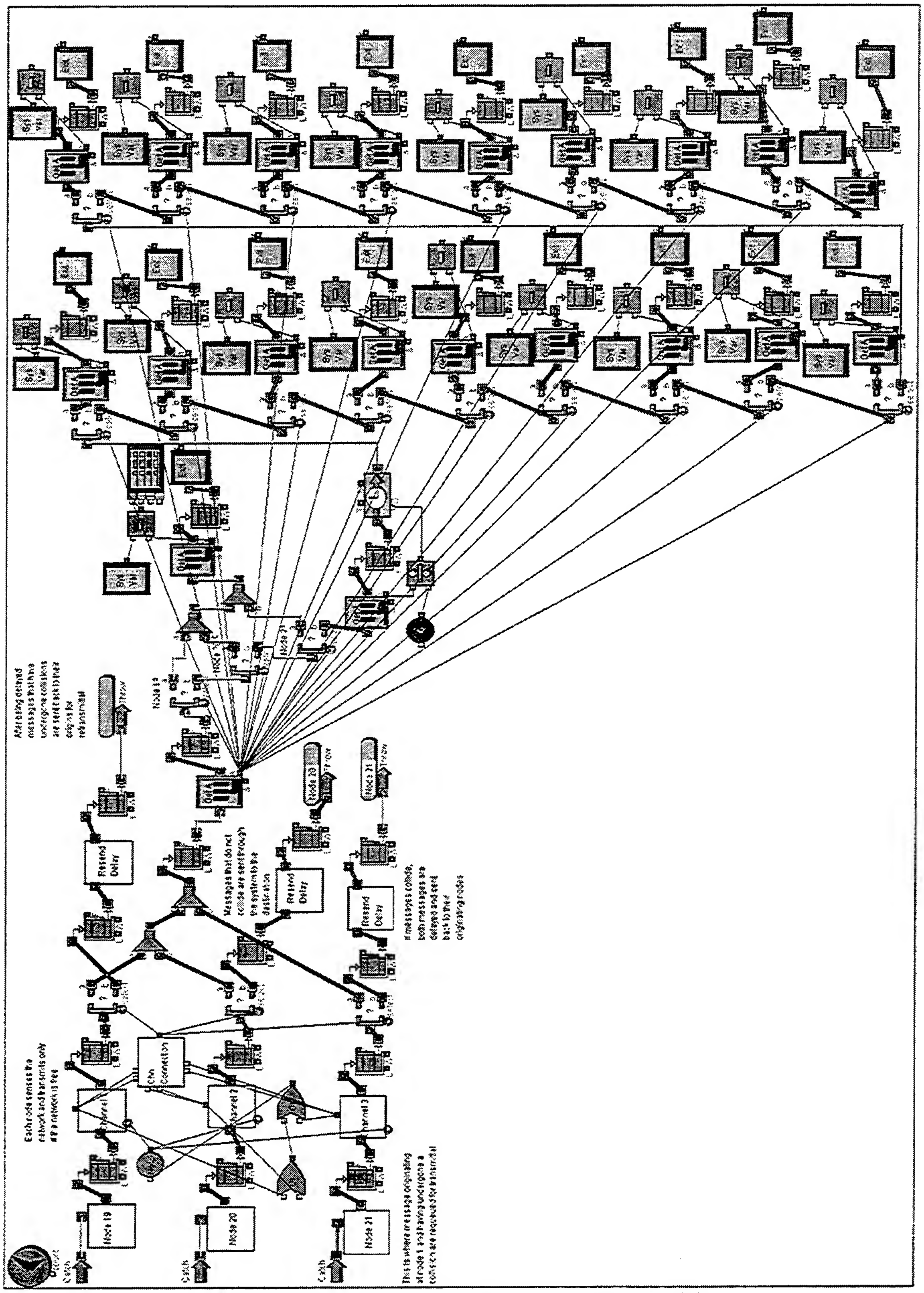


Figure 31. Jayapura Main Naval Base LAN

C. TESTING AND SIMULATION RUN

This section provides results of testing and simulation runs of our wide area network design. A simulation was run using the initial network depicted in Figure 24. All simulations run for a specified time. Extend-4 determines the duration of a simulation based on the values entered in the Simulation Setup dialog (see Figure 31); the duration is the period from the start time to the end time.

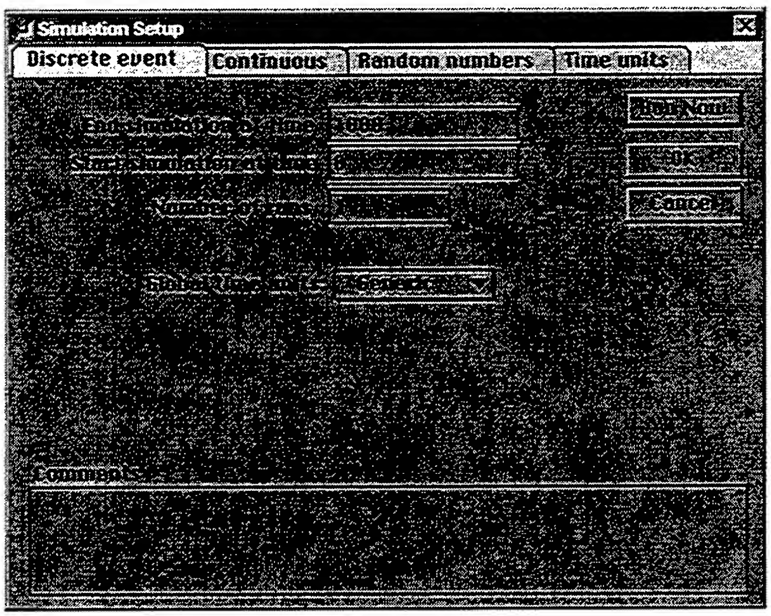


Figure 32. Simulation Set Up Dialog

A Run was executed for 100 seconds simulation time which constituted about 660 seconds real time, and 350 seconds simulation time which constituted about 2040 seconds real time. We executed two simulation runs in each simulation setup. The first run of simulation we used a frequency distribution of 1 second that we set in the Generator program block at each origin node. At the second run we use frequency distribution 0.5 second. All communications that started and ended within an origin nodes and the Ethernet bus showed a delay equal to the message size divided by the

bandwidth. The "Solid Blue" line indicates the bandwidth delay and the "Gray Pat Green" line indicates the average bandwidth delay. The charts depict the delay according to time for each LANs. The vertical axis depicts the delay incurred for each message. The horizontal axis displays the simulation time.

The charts on the figures 32 through figure 57 show some significant spikes in time delay during the messages flows in the network using WAN connection service ISDN 128Kbps and using T1 Line 1.544 Mbps.

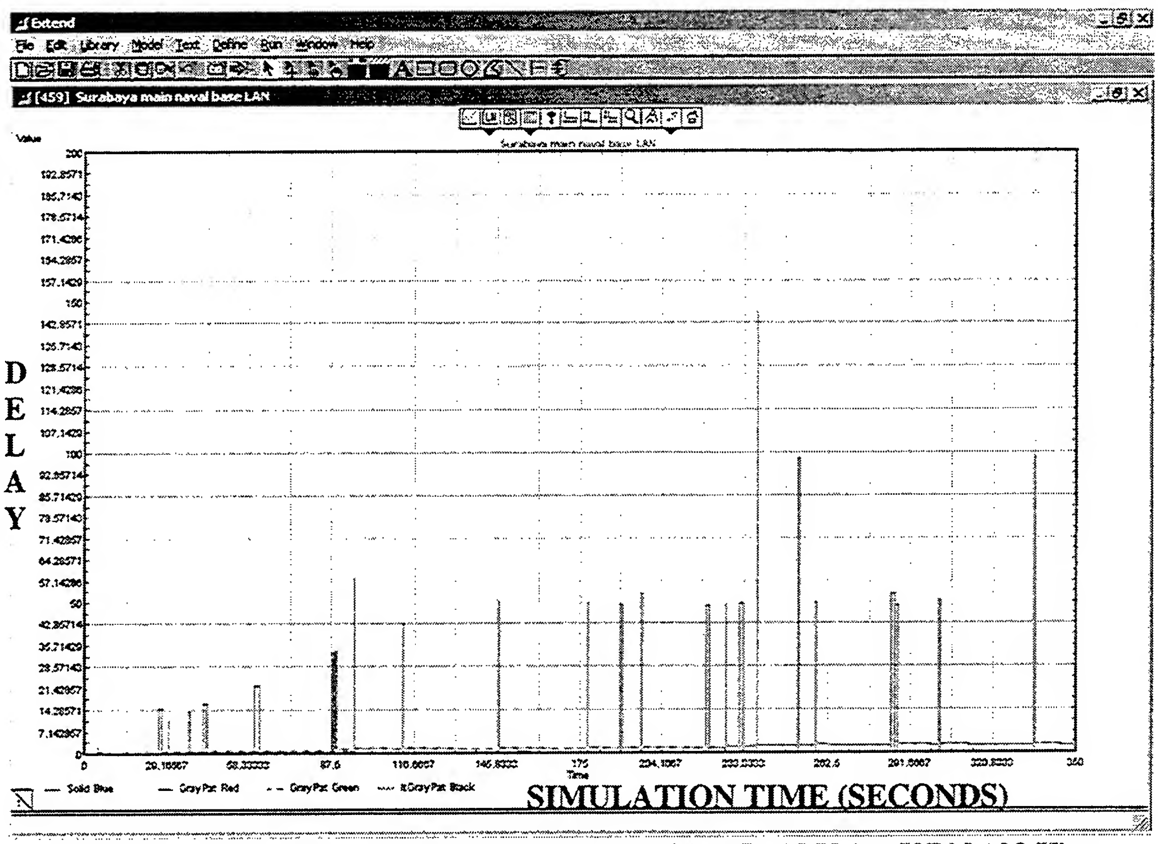


Figure 33. Delay Within Surabaya Main Naval Base LAN Using ISDN 128 Kbps

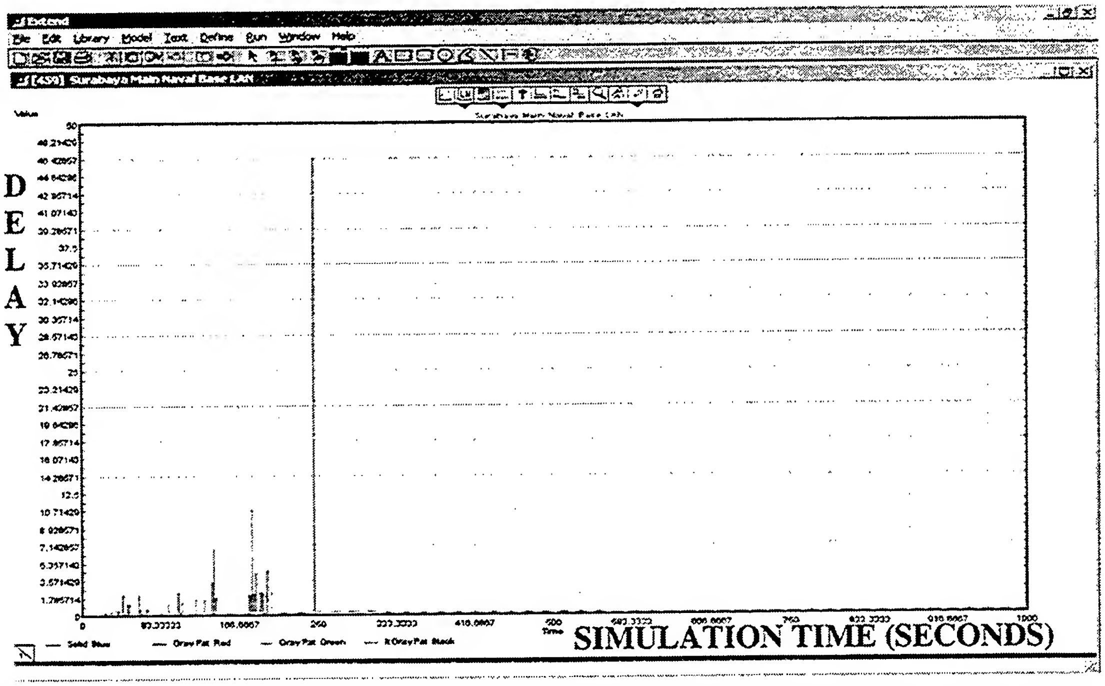


Figure 34. Delay Within Surabaya Main Naval Base LAN Using T1 Line 1.544 Mbps

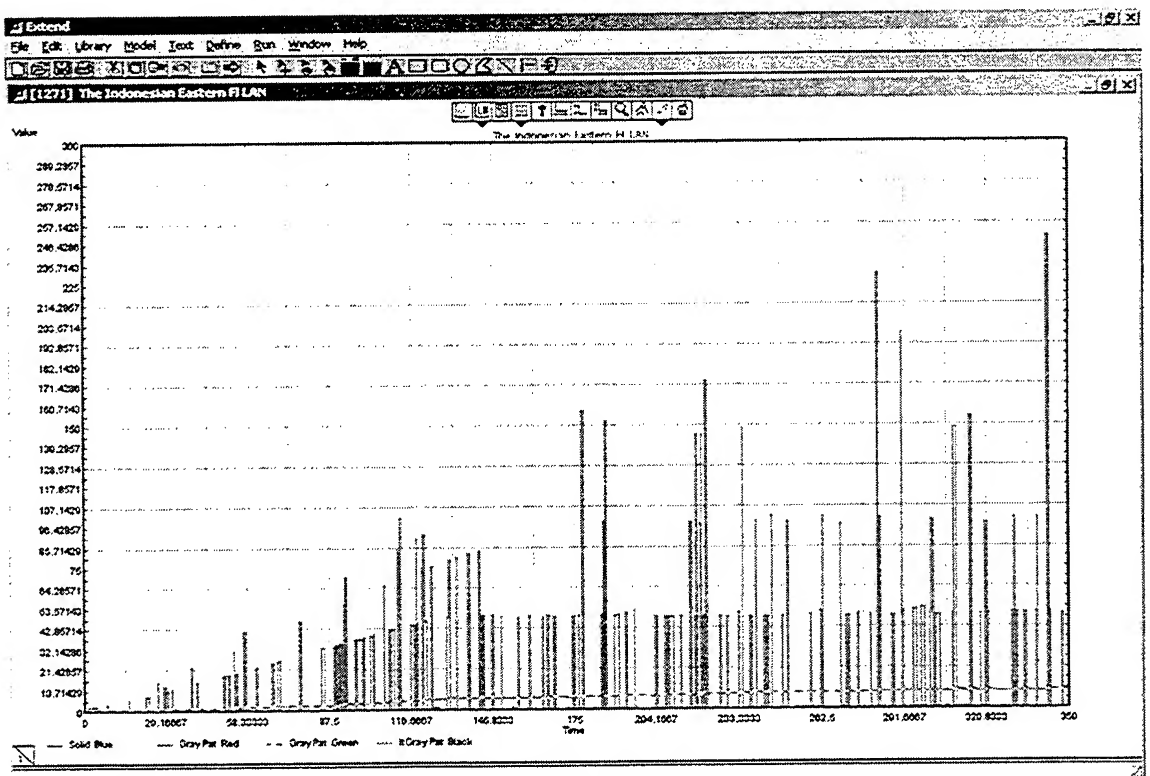


Figure 35. Delay Within the Indonesian Eastern Fleet Headquarters LAN Using ISDN 128 Kbps

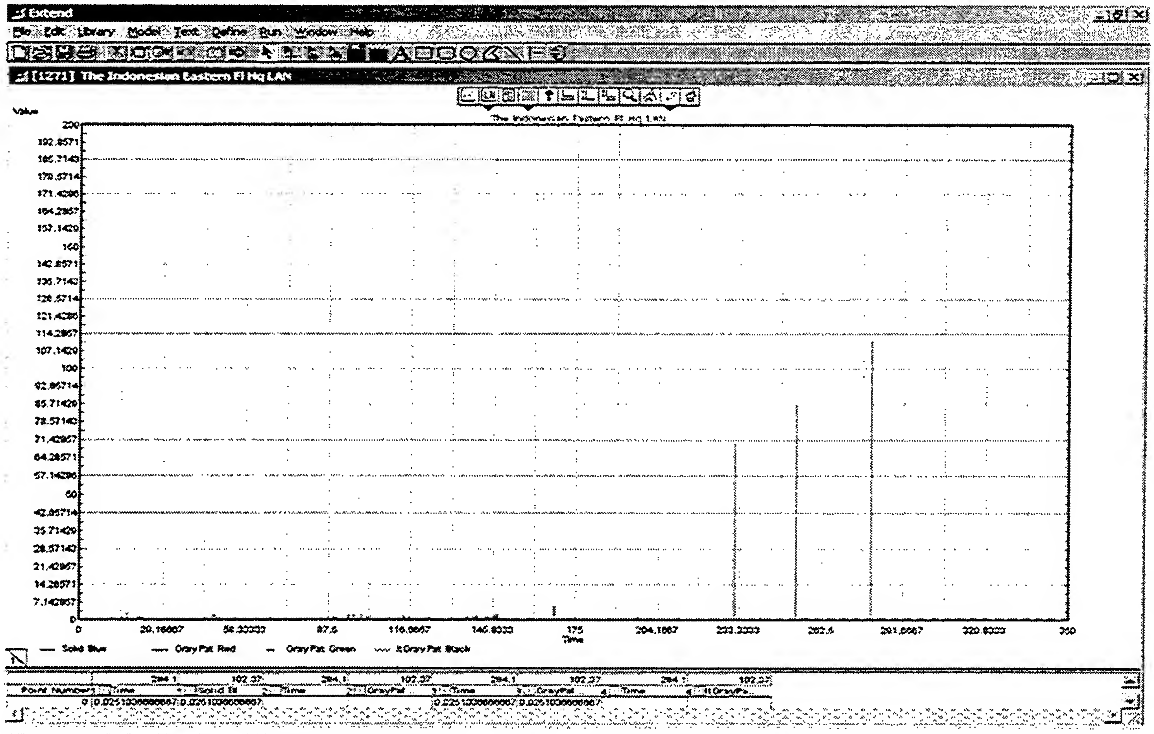


Figure 36. Delay Within the Indonesian Eastern Fleet Headquarters LAN Using T1 Line 1.544 Mbps

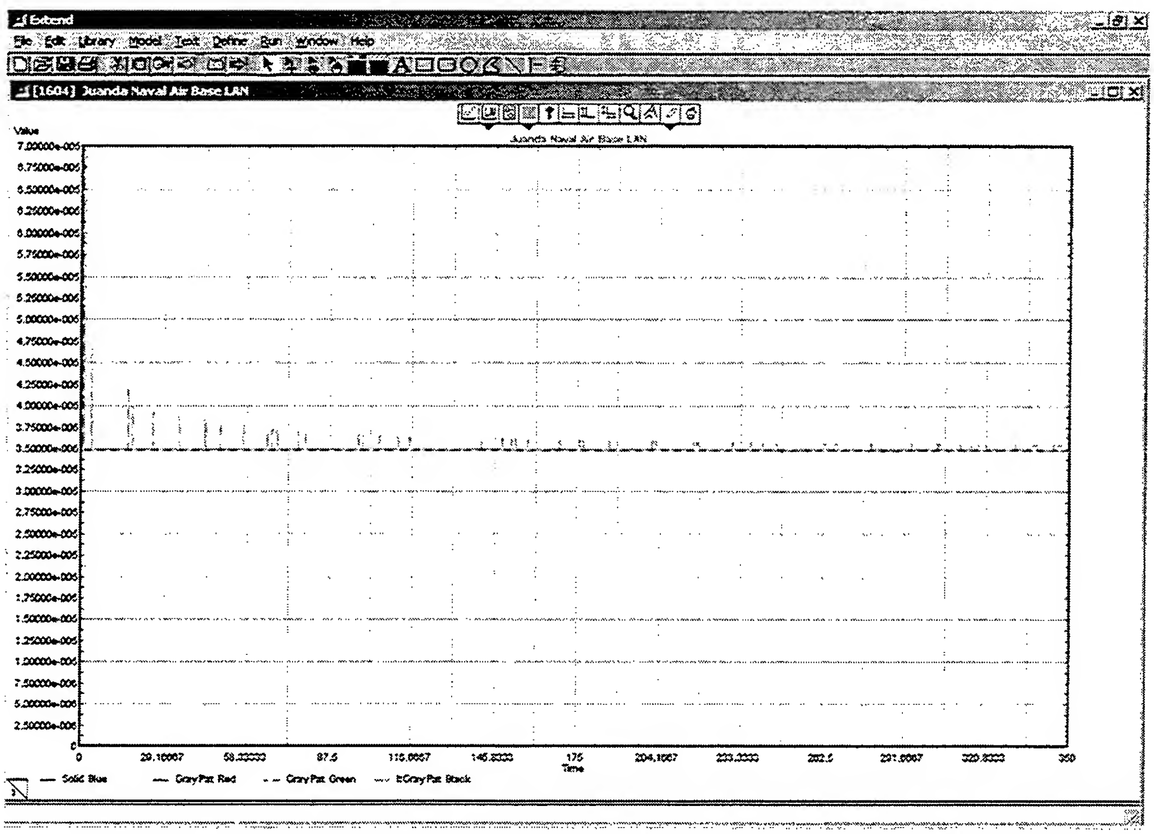


Figure 37. Delay Within Juanda Naval Air Base LAN Using ISDN 128 Kbps

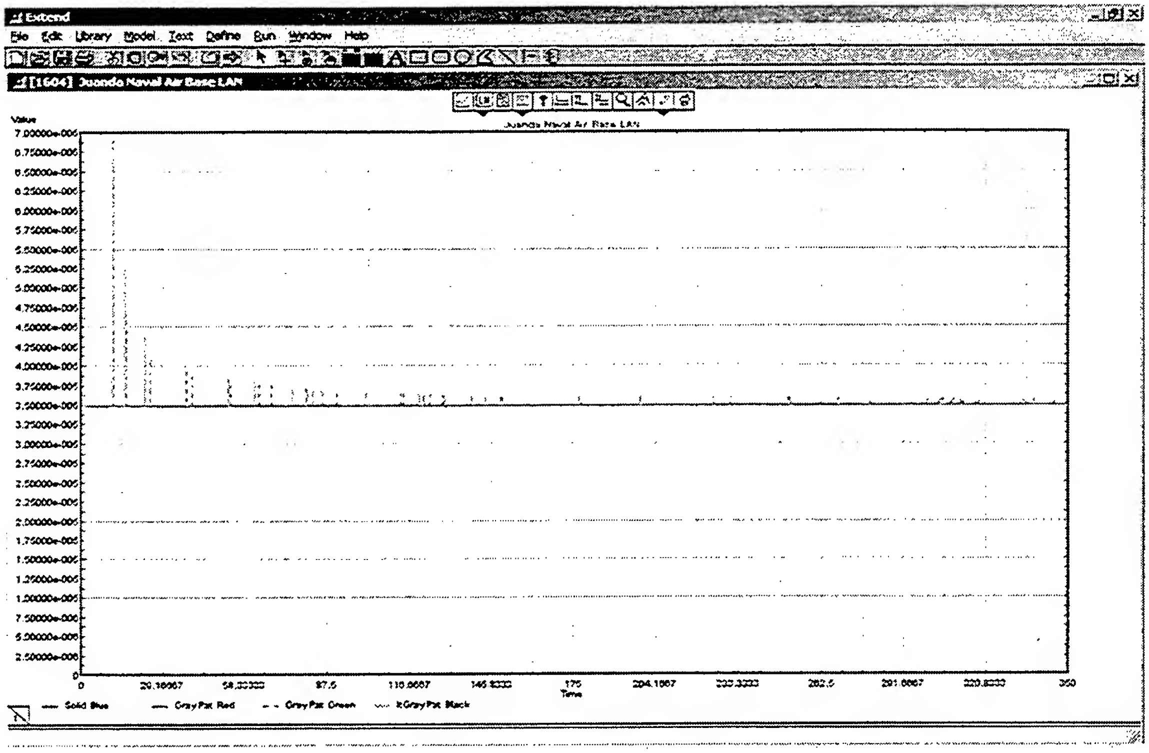


Figure 38. Delay Within Juanda Naval Air Base LAN Using T1 Line 1.544 Mbps

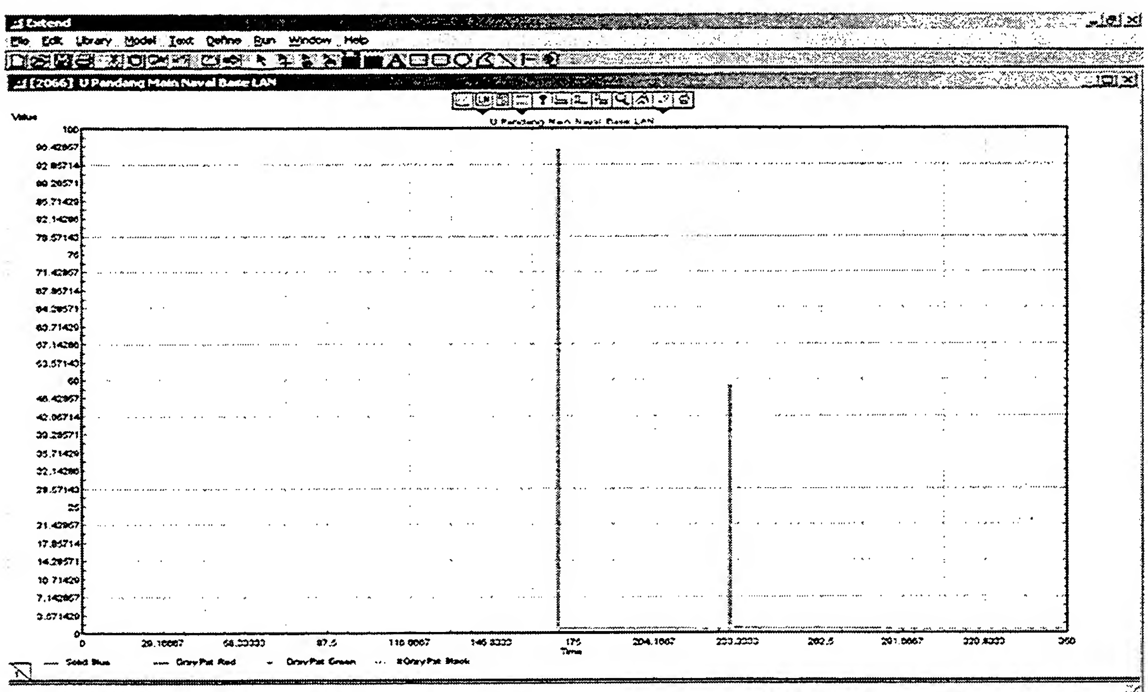


Figure 39. Delay Within Ujung Pandang Main Naval Base LAN Using ISDN 128 Kbps

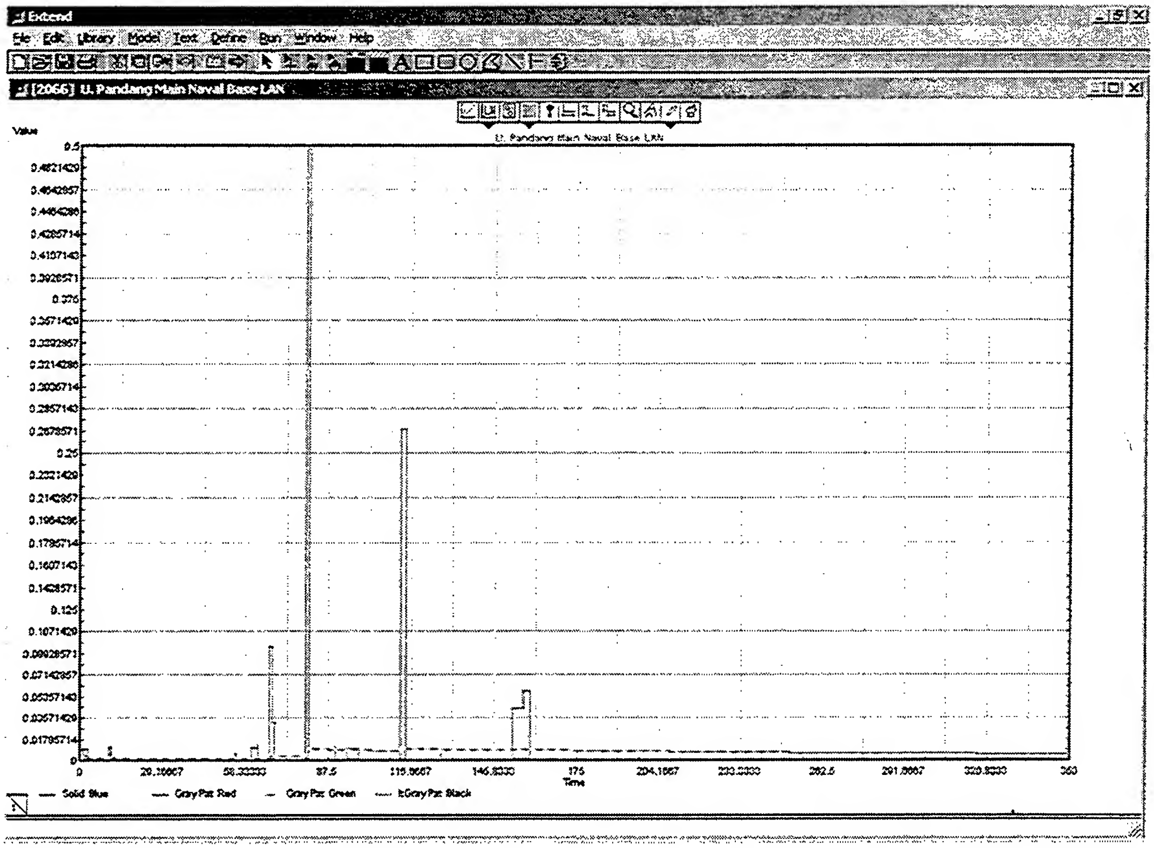


Figure 40. Delay Within U. Pandang Main Naval Base LAN Using T1 Line 1.5 Mbps

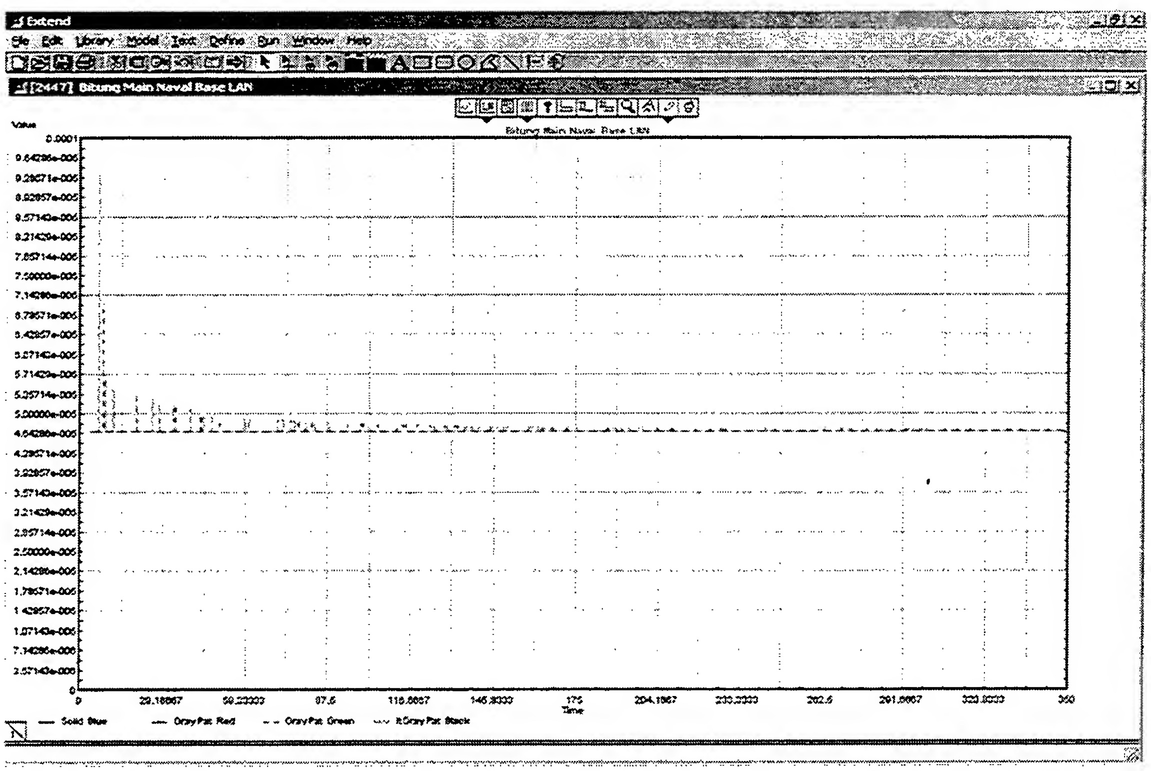


Figure 41 Delay Within Bitung Main Naval Base LAN Using ISDN 128 Kbps

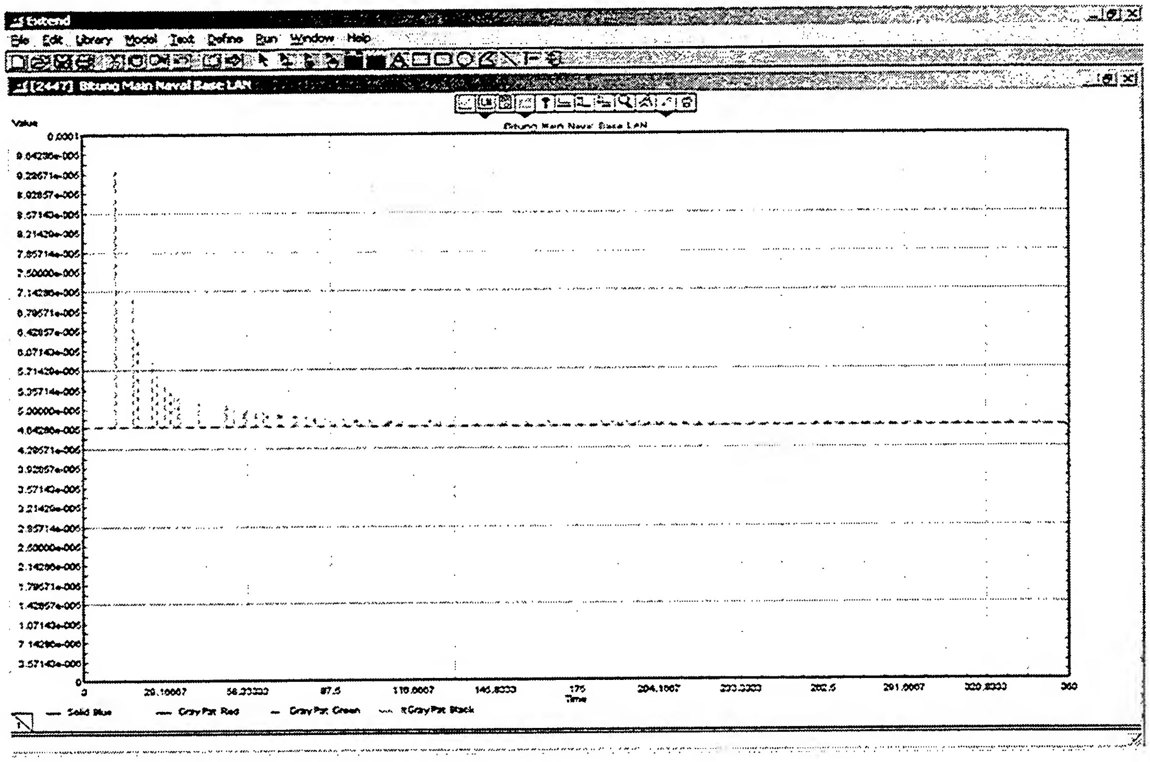


Figure 42. Delay Within Bitung Main Naval Base LAN Using T1 Line 1.544 Mbps

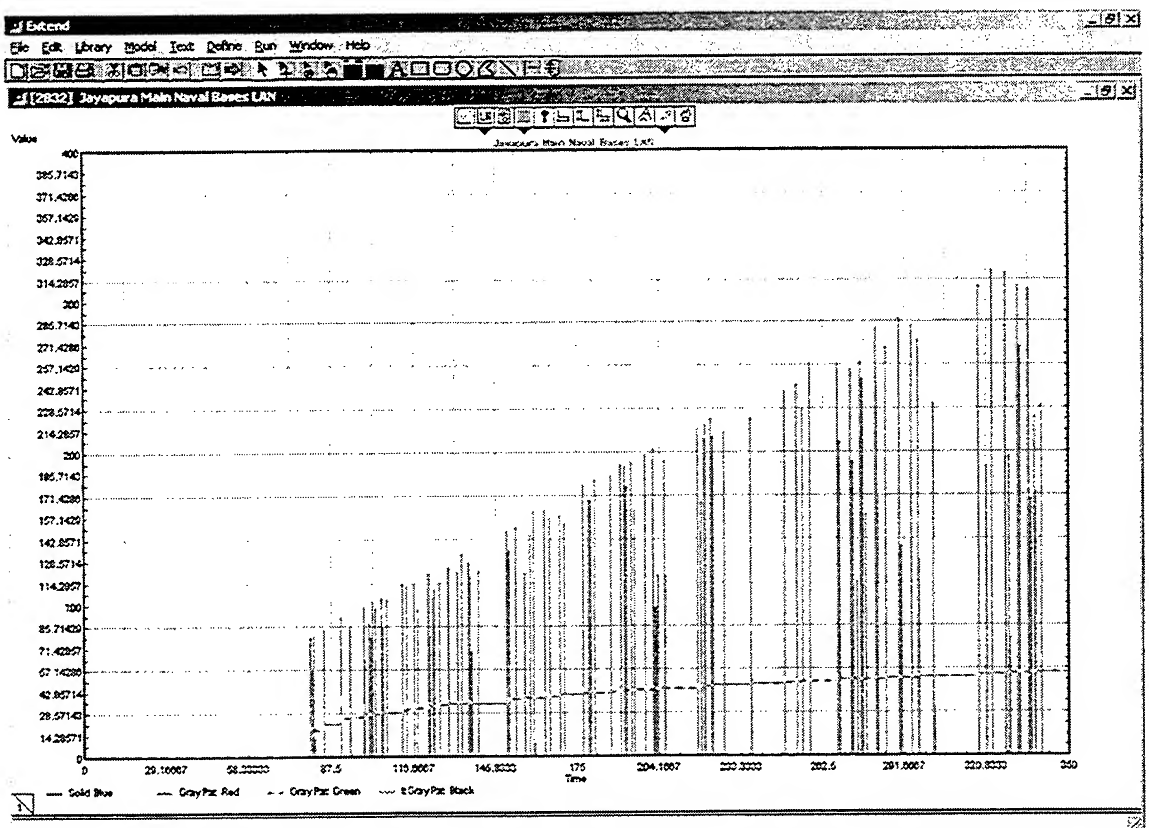


Figure 43. Delay Within Jayapura Main Naval Base LAN Using ISDN 128 Kbps

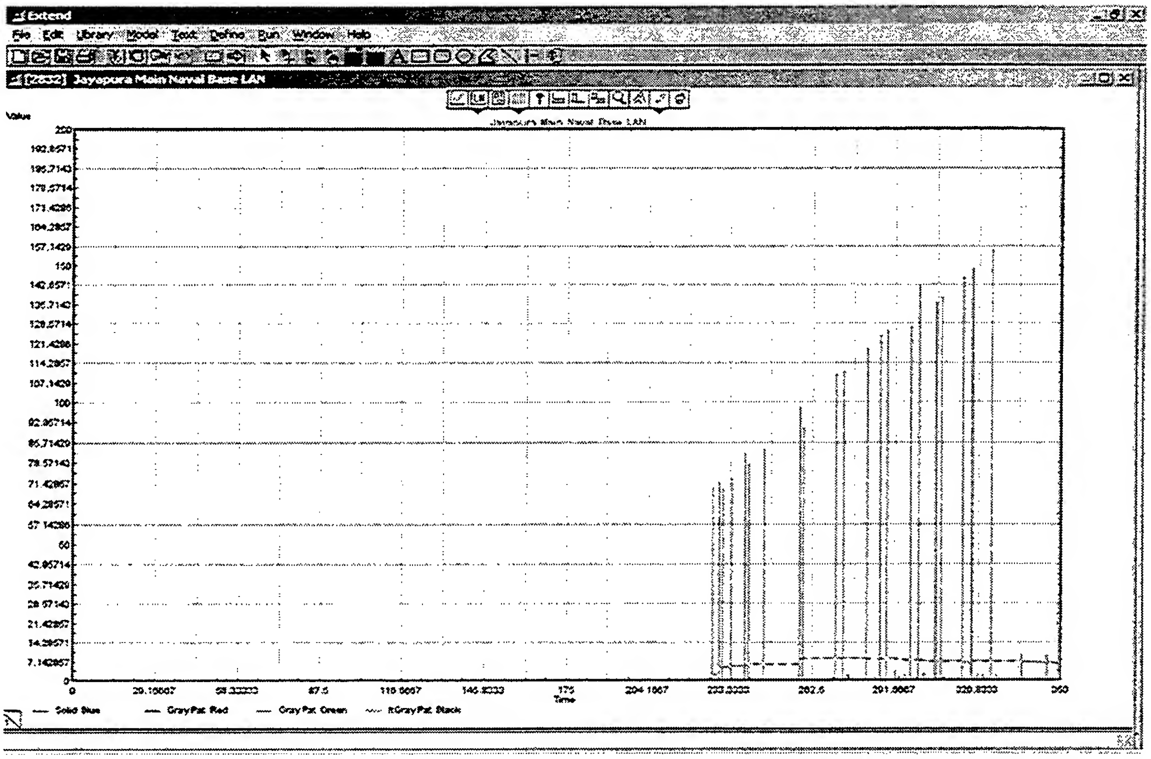


Figure 44. Delay Within Jayapura Main Naval Base LAN Using T1 Line 1.544 Mbps

A total of four simulation runs were conducted. The data is summarized in the plots and charts provided in Appendix A; the charts contain detailed message traffic reports for randomly selected nodes. Run 0 was programmed for duration of 350 simulation seconds using a frequency distribution of 1 second, which took 2040 seconds real time to accomplish. Run 1 was programmed for duration of 350 simulation seconds using frequency distribution 0.5 second, which took 2150 seconds real time to accomplish. Run 2 was programmed for a duration of 100 simulation hours using a frequency distribution of 1 second, which took 660 seconds real time to accomplish. Run 3 was programmed for a duration of 100 simulation seconds using a frequency distribution 0.5 second, which took 660 seconds real time to accomplish.

The final results of the simulation showed that the wide area network communication architecture which consists of six FAST ETHERNET 100 Mbps LAN

configuration had minimal delays that caused by messages collisions and the load of the network traffic. The worst case of maximum bandwidth delay (indicated by solid blue lines) along the wide area network traffic is 5 minutes. However, these maximum bandwidth delays still within requirement limitations for the flows of network traffic of the Indonesian Eastern Fleet WAN.

T1 Line 1.544 Mbps provides better results on the average bandwidth delay (indicated by the gray pat green lines). All charts showed T1Line's average bandwidth delay is smaller than ISDN's average bandwidth delay which mean the network traffic is working effectively without too much messages collisions and delays. It was occurred because the T1 line 1.544 Mbps provides 12 x faster speed and the network is working more efficiently. The result of the tests and simulation runs indicated that the Indonesian Eastern Fleet WAN design either using ISDN 128 Kbps or T1 Line 1.5 Mbps is reliable and has a good performance in its network traffic management.

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VII. CONCLUSIONS AND RECOMMENDATIONS

An improvement in information systems will increase productivity, speed, and effectiveness of the Indonesian Eastern Fleet in accomplishing their tasks and missions. The Indonesian Eastern Fleet has to deal with many issues related to the fast improvement of the information technology systems. The existing information structure of the Indonesian Eastern Fleet must be optimized to handle fleet missions and tasks. The Indonesian Eastern Fleet network's communication system resources such as telephone, radio communications, microwave-link and satellite systems are still not linked for optimal data communication exchange to computer network systems in LANs or in an integrated WAN. Implementation of an integrated WAN using web-based technology is the best solution to utilize the existing computer communication systems in the Indonesian Eastern Fleet.

The linkage of all main naval base LANs using ISDN WAN connection service provides a reliable computer communication network that can be used by the Indonesian Eastern Fleet to support all naval units in the eastern region with great effectiveness. ISDN connection service is inexpensive compared to other WAN connection lines such as T1, T3, OC-3, OC-12, OC-48, or OC-192. However, it is already met the requirements of the Indonesian Eastern Fleet network. We can migrate easily to a T1 line 1.544 Mbps connection service in the near future if the budget allocation is available in order to achieve better network performance and speed. T1 Line 1.5 Mbps provides robust and reliable network configuration to support the main goal of the Indonesian Eastern Fleet information systems.

The Indonesian Eastern Fleet should use a standardized LANs architecture to provide a responsive and uniform network environment. We recommend Fast Ethernet 100 Mbps LANs configuration as a standardized LANs infrastructure for the Indonesian Eastern Fleet network. Fast Ethernet LANs configuration operating at 100 Mbps using CAT-5 UTP provides a reliable LAN technology that meets high demands for network bandwidth.

To obtain the best performance of our network, we need to determine the appropriate hardware and software compatibility that meets the Indonesian Eastern Fleet network's requirements and allocated budget. Inexpensive is the keyword in designing our network. However, effective local area networks (LANs) and an integrated wide area network (WAN) are required to achieve connectivity of the Indonesian Eastern Fleet Network. Web-based network management using HP OpenView should be implemented to monitor and control the operation of the network to ensure that they always run properly. SNMP was recommended to allow future growth toward remote WAN monitoring to assist fleet operations. Using the Web brings efficient communications and provides faster action in carrying out the tasks and missions.

There are great advantages and benefits in designing and evaluating the Indonesian Eastern Fleet WAN using EXTEND-4 software simulation program. Using EXTEND-4 we measure specific performance variables of our network design in a quantitative fashion. The result of simulation runs of network traffic that consists of email traffic volume, video conferencing network traffic, and data transfer traffic volume indicates that the WAN communication architecture that consists of six FAST ETHERNET 100 Mbps LAN had minimal delays caused by messages collisions and the

load of the network traffic. T1 line 1.544 Mbps connection service provides better results on the average bandwidth delay compared to ISDN 128 Kbps. T1 line has faster transmission than ISDN resulting in less messages collisions and network traffic working more fluently without too much bandwidth delay. The worst case of maximum bandwidth delays showed at the delay within Jayapura main Naval Base LAN using ISDN 128 Kbps (figure 42) along the network traffic is 5 minutes. This maximum bandwidth delay is still within requirement limitations of our WAN traffic flows.

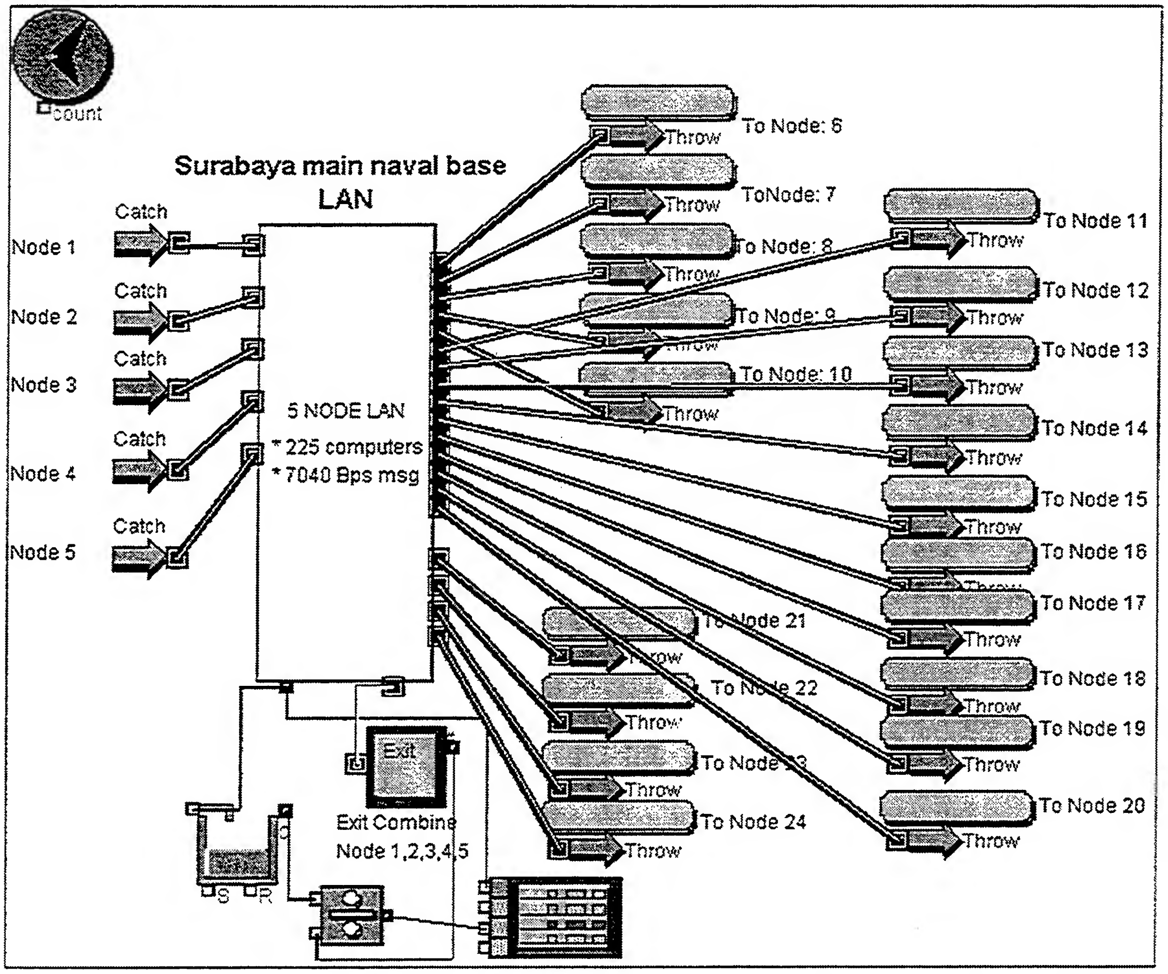
From a total of four simulations run that we conducted, we concluded that the Indonesian Eastern Fleet WAN design either using ISDN 128 Kbps or T1 line 1.5 Mbps was reliable and had good performance in its network traffic management. In this simulation, an increase in delay can readily be seen at the last LAN, which is Jayapura LAN, which showed that the delay climbed sharply caused by the load of the network traffic. We recommend the users of the Indonesian Eastern Fleet WAN define their destination address by priority in order to avoid the network traffic jam and overloaded messages traffic at the busy working time.

The basic configuration of the Indonesian Eastern Fleet wide area network has been built and tested in this thesis. The implementation of web-based network management will maintain and manage our network to run properly and to operate in optimal condition. An area of future research is designing and building mobile platforms networks for supporting operational fleet units including warships and aircraft. Life cycle costs that involve personnel and training need to be included in future research in order to obtain the main goal of an effective and efficient naval fleet. Strategic management needs to take a strong and active leadership role in developing all of the

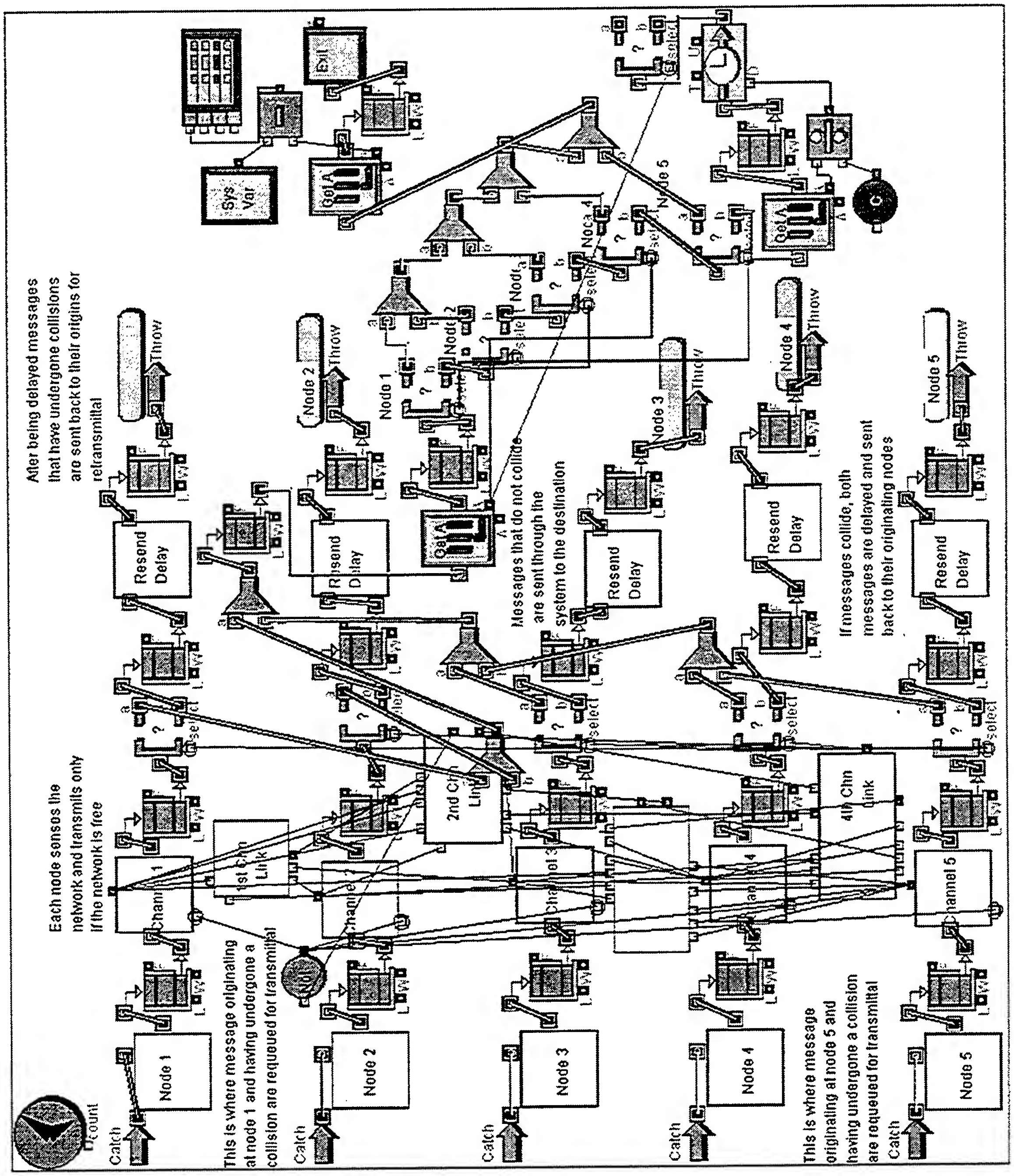
infrastructure to gain a benefit from information technology. The improvement of information technology occurs rapidly and we cannot avoid its influence to our systems. Information technology systems, especially computer communication networks, always improve and keep changing to give performance with time.

APPENDIX A. NETWORK DESIGN MODEL

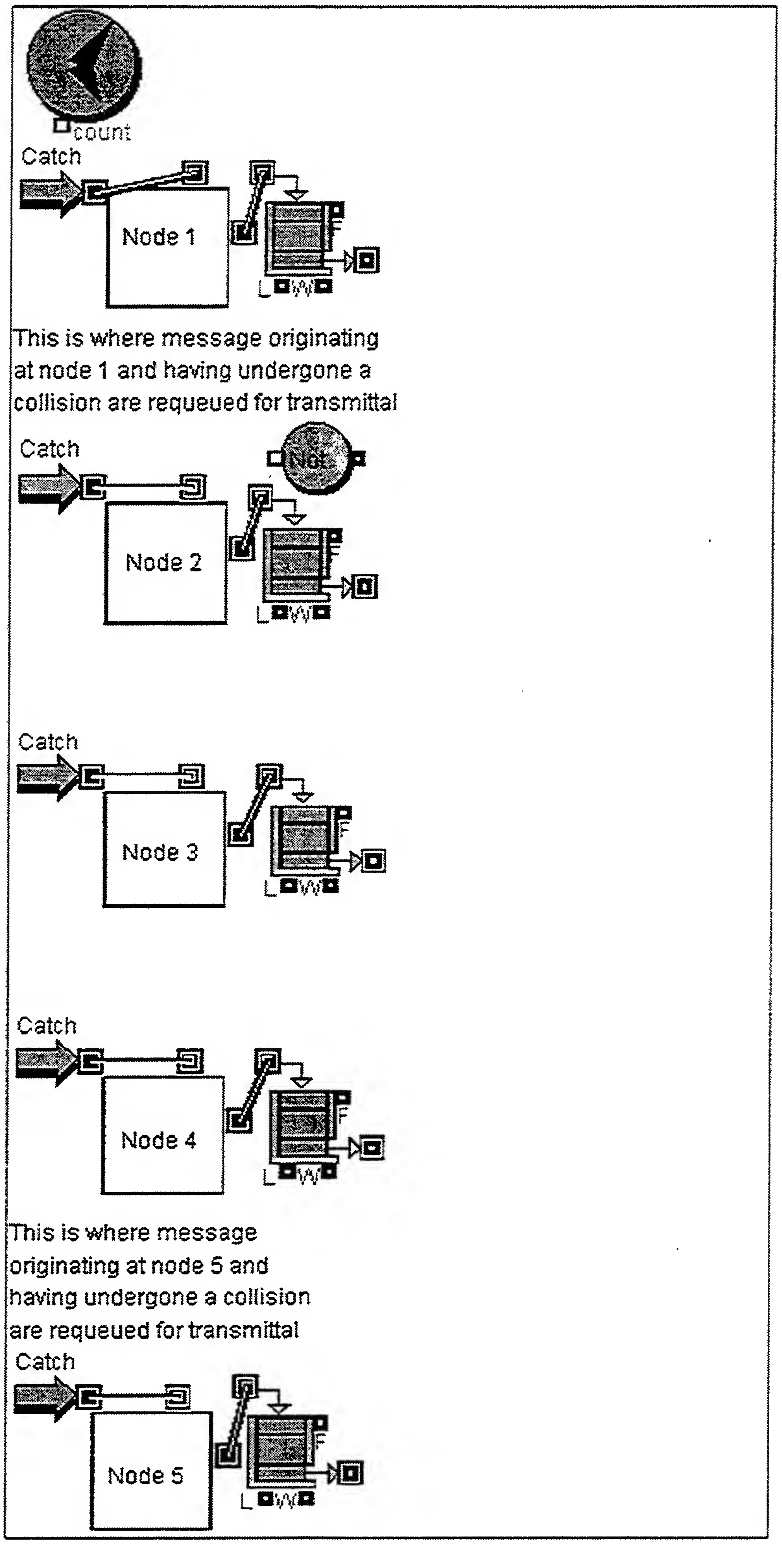
This appendix contains the high level view and detailed view of our local area network design model. The functionality within the model are shown by the low-level design model. Each block is displayed along with the detailed design of the block on the ensuing page. We displayed hierarchical blocks design to layer the model of all blocks. This appendix illustrates the configuration model of messages traffic flow in our Fast Ethernet local area network to all destinations in the wide area network.



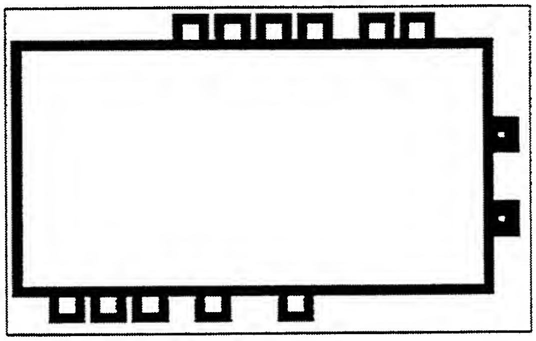
High Level View of LAN Configuration Model



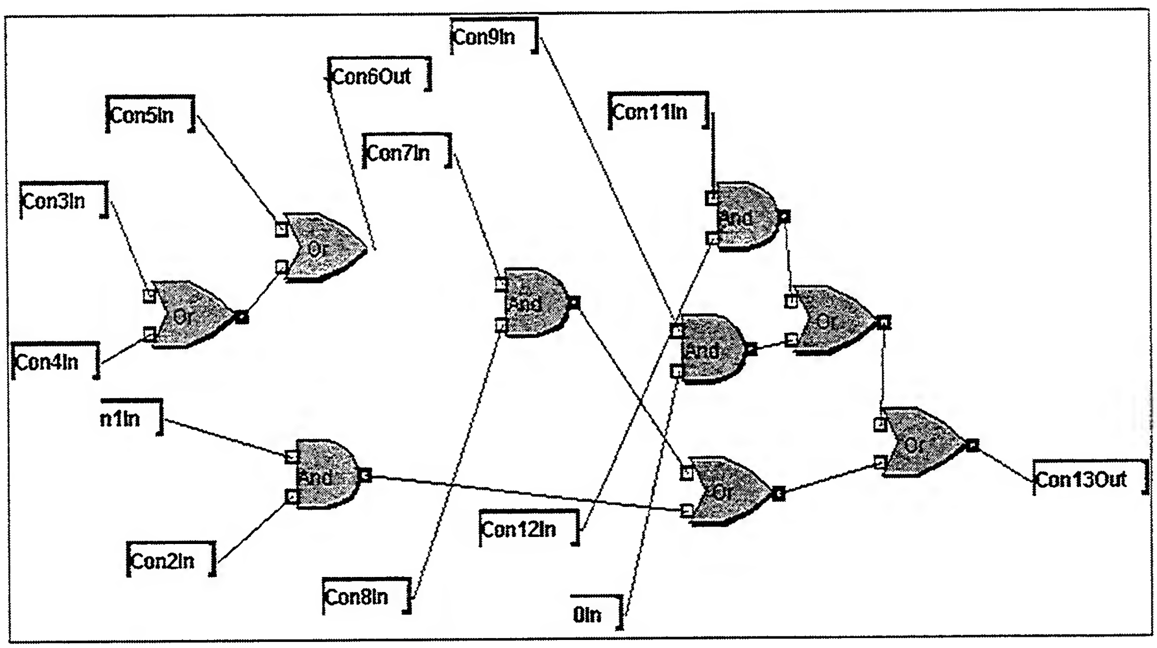
Fast Ethernet LAN Configuration Model



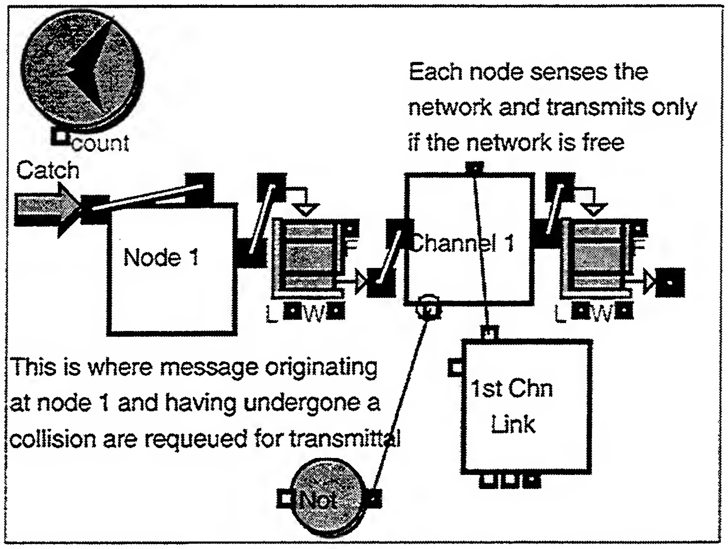
Network Origin Nodes



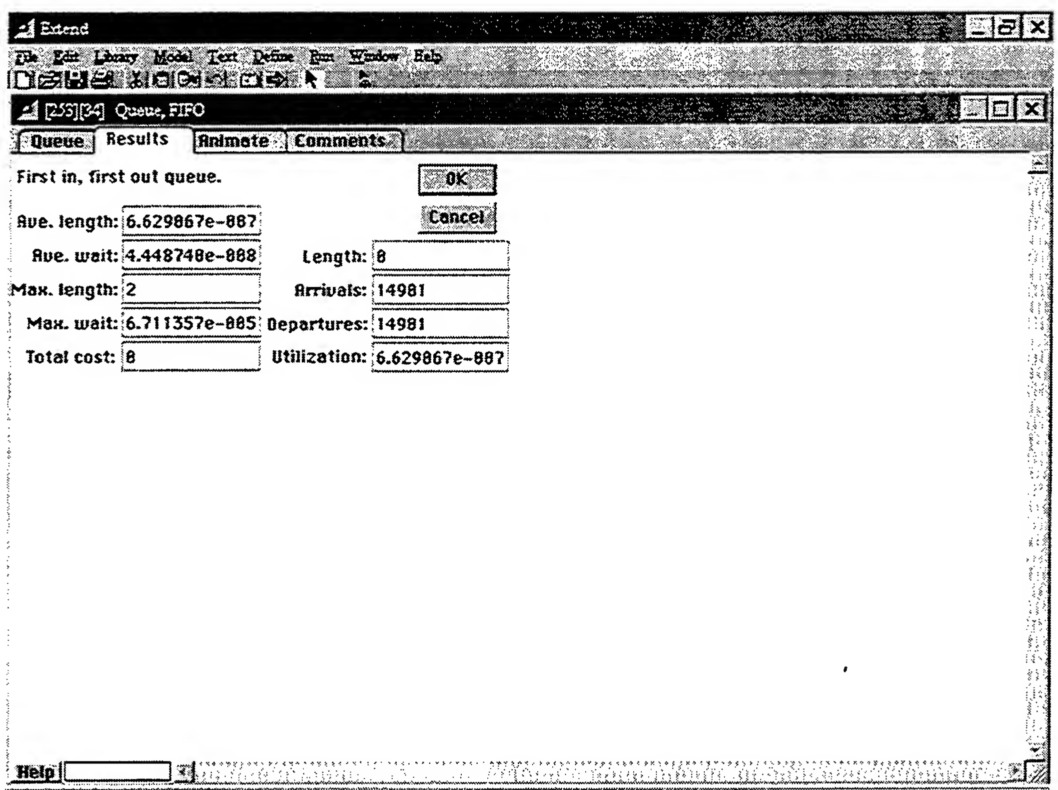
High Level View of LAN Channel Link Sensor



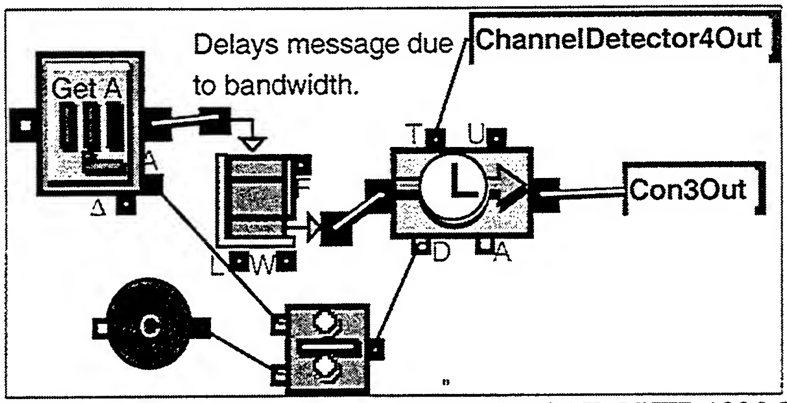
Detailed View of LAN Channel Link Sensor



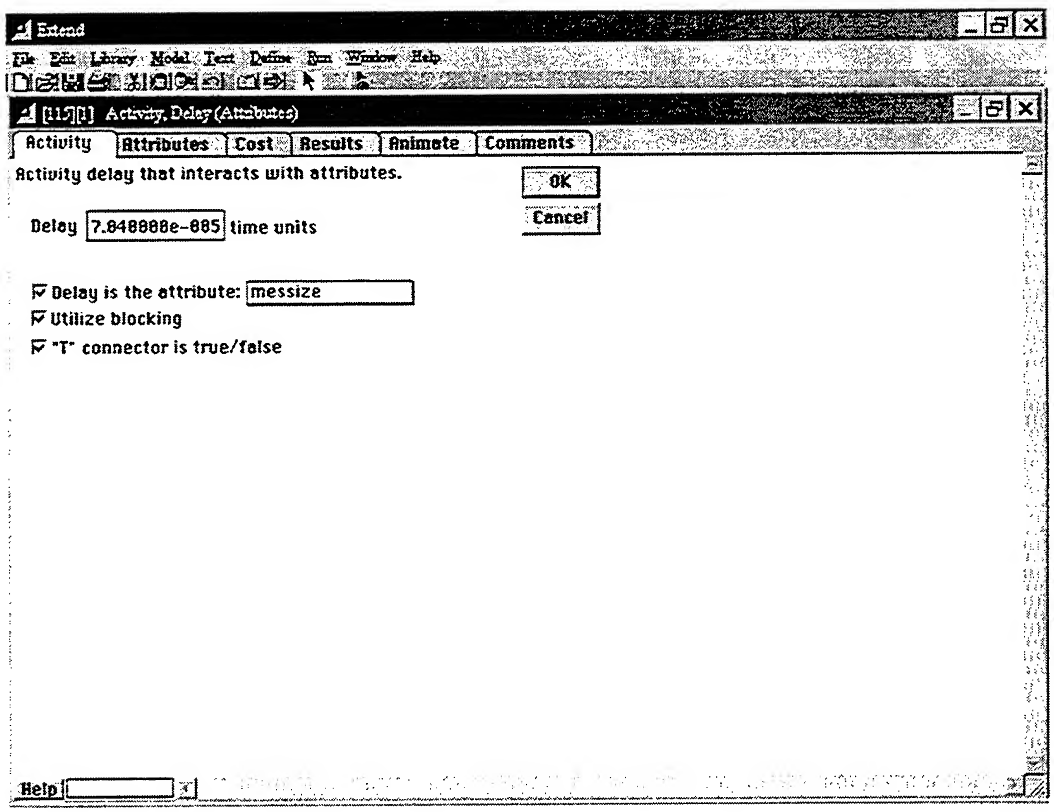
Initial Messages Traffic Flow



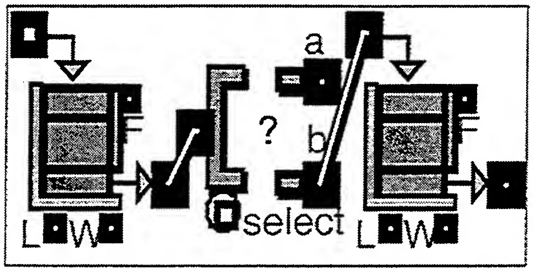
FIFO Queue for the Arrivals and Departures Messages



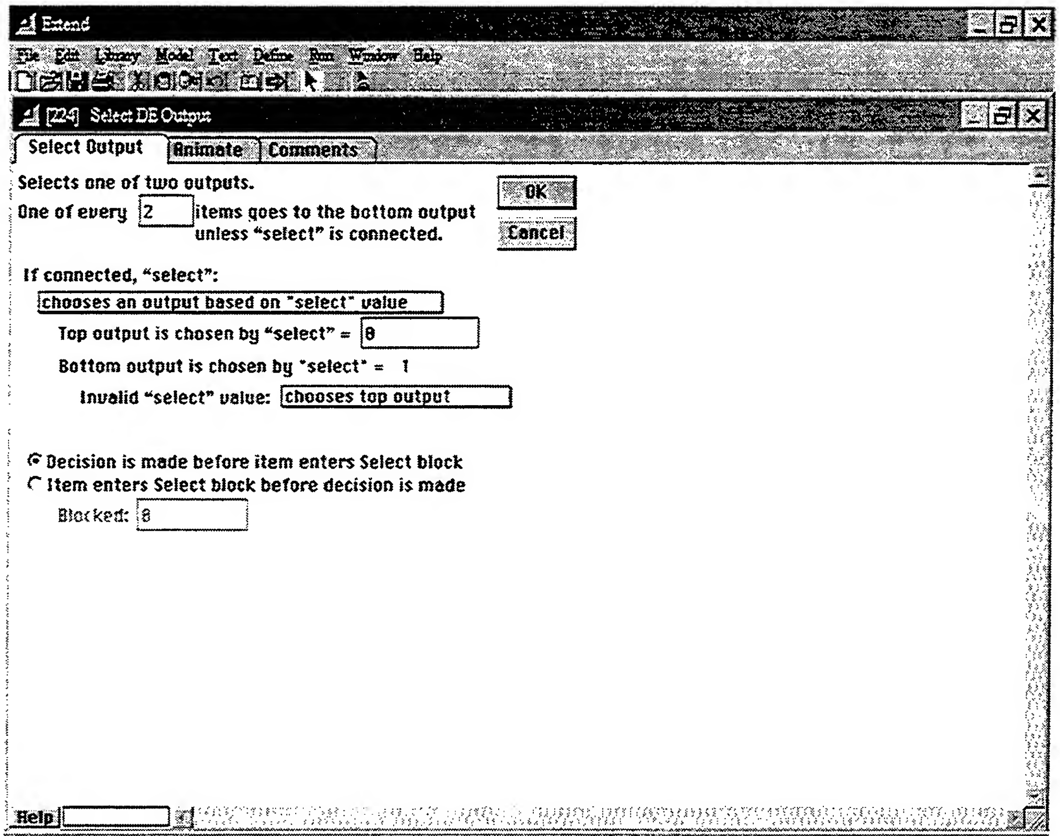
Bandwidth Delay Within the Ethernet Bus by CAT-5 UTP 100 Mbps



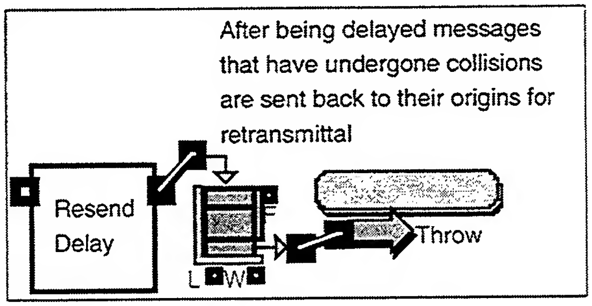
Activity Delay Dialog Box



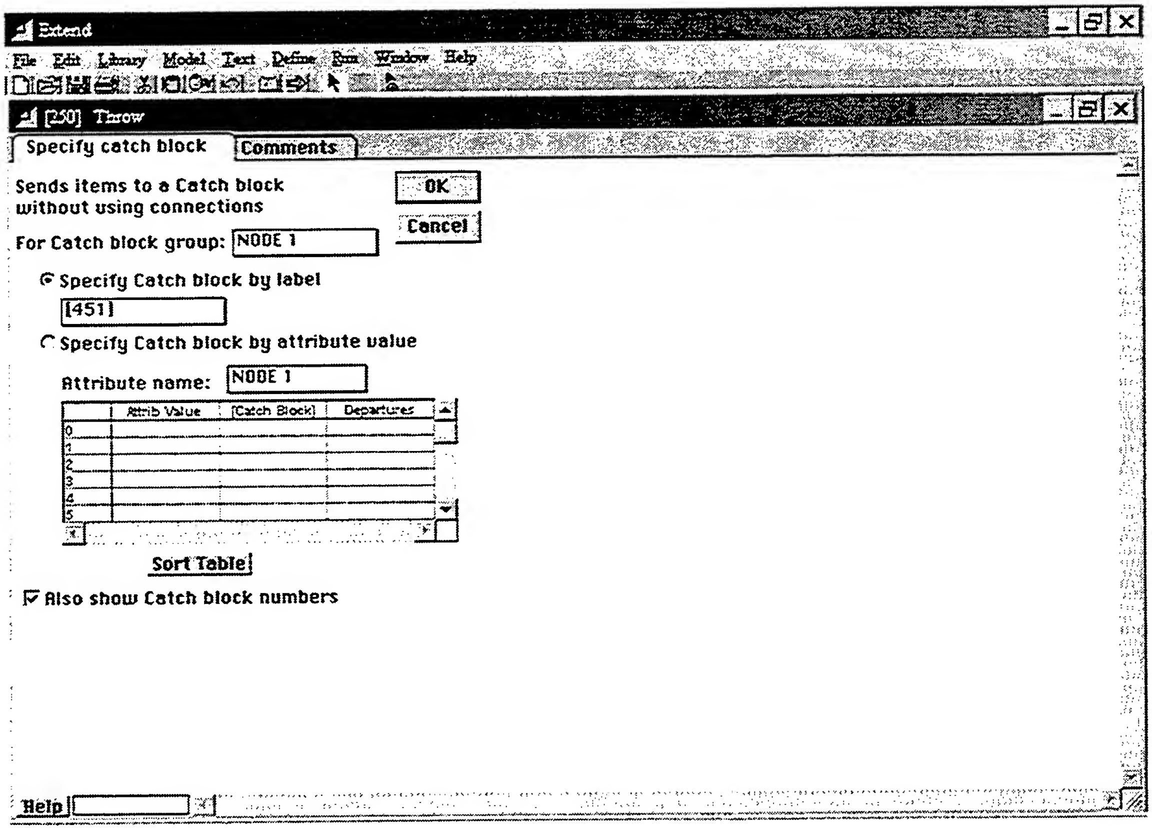
LAN Select Output



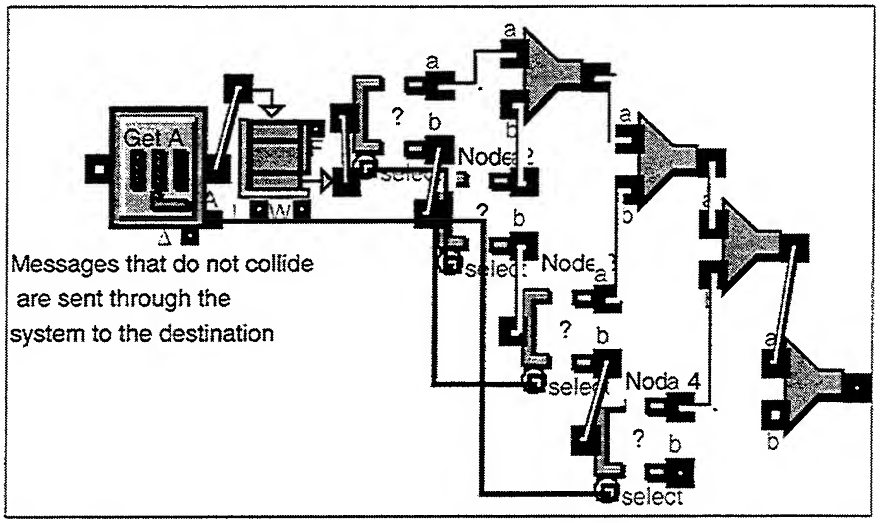
Select Output Dialog Box



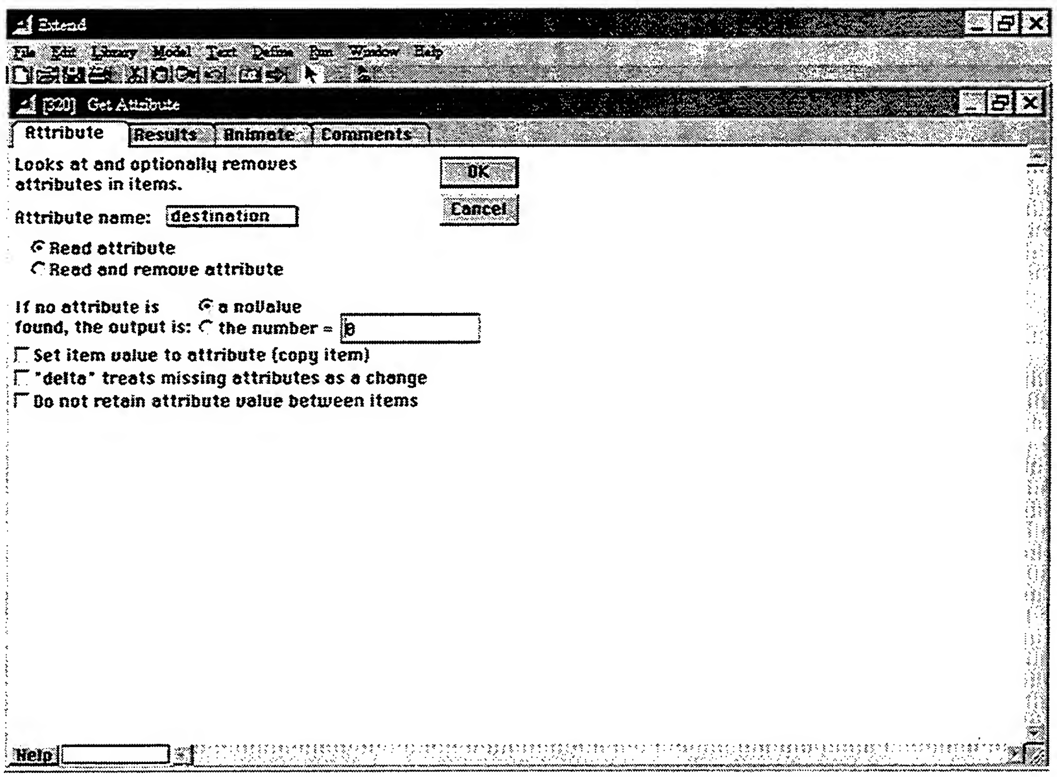
Messages Thrown for Retransmittal



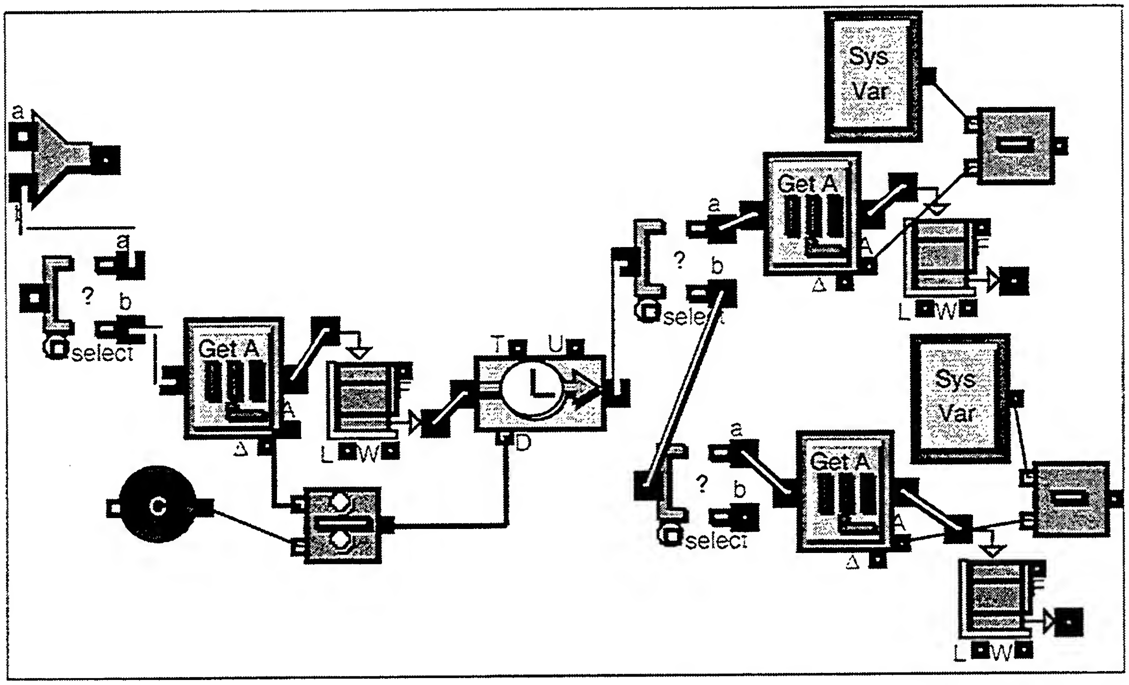
Throw Block Dialog Box



Get Attribute Messages Destination and the Router



Get Attribute Dialog Box



Bandwidth Delay Within the WAN by ISDN/T1 Line Connection Service

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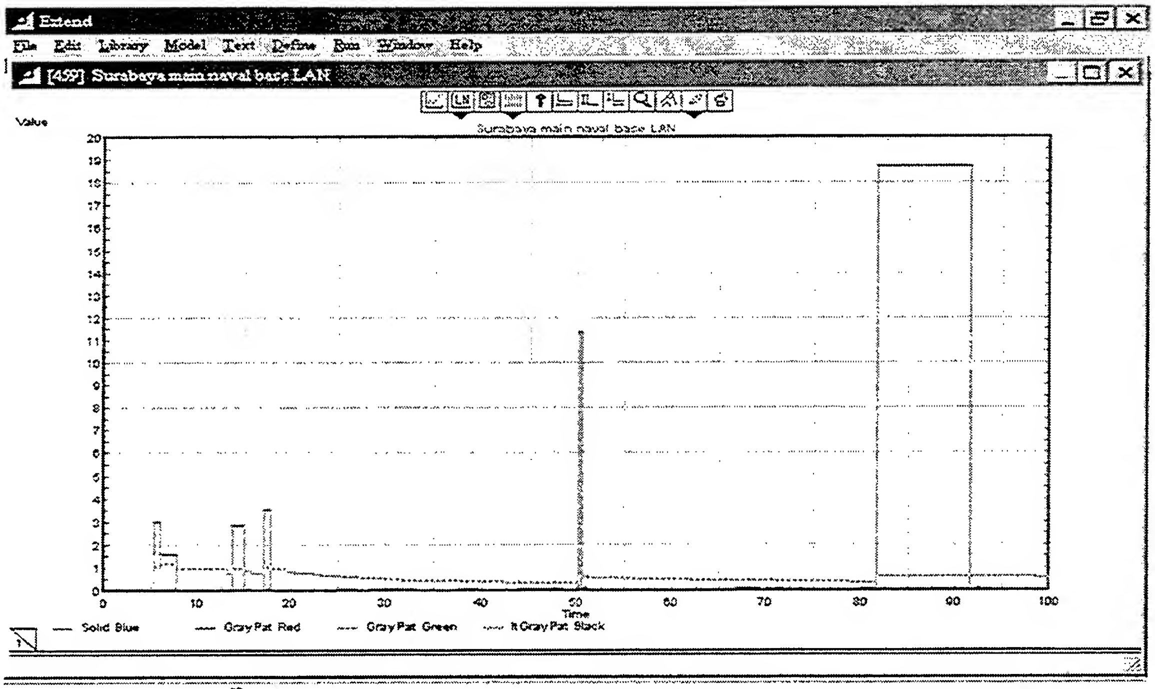
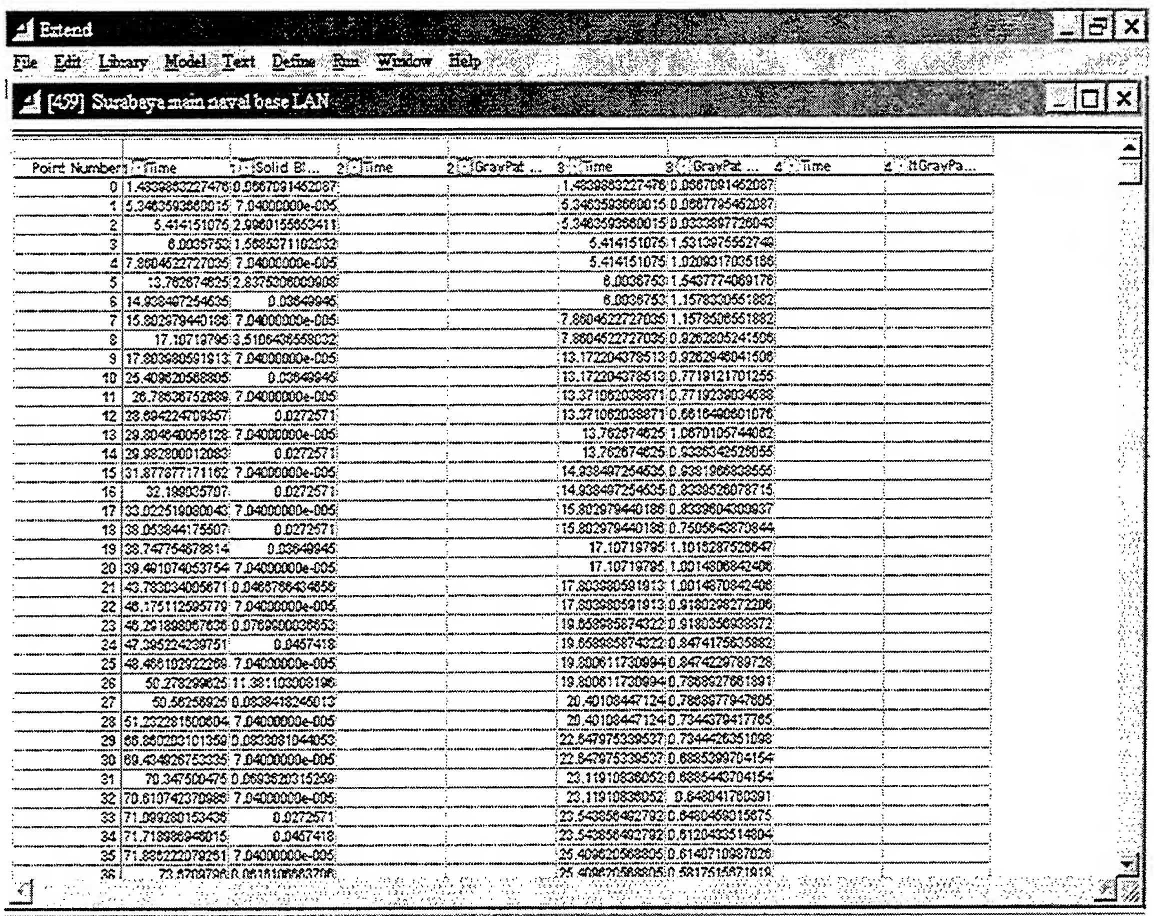
APPENDIX B. NETWORK TRAFFIC TESTS AND SIMULATION RUNS DATA

This appendix contains the result of our network traffic tests and simulation runs. The graph displays the delay experienced within each of the tested network design over the period of the model. The data shows the arrival time of the message and the delay associated with the message using ISDN 128 Kbps, and T1 line 1.544 Mbps.

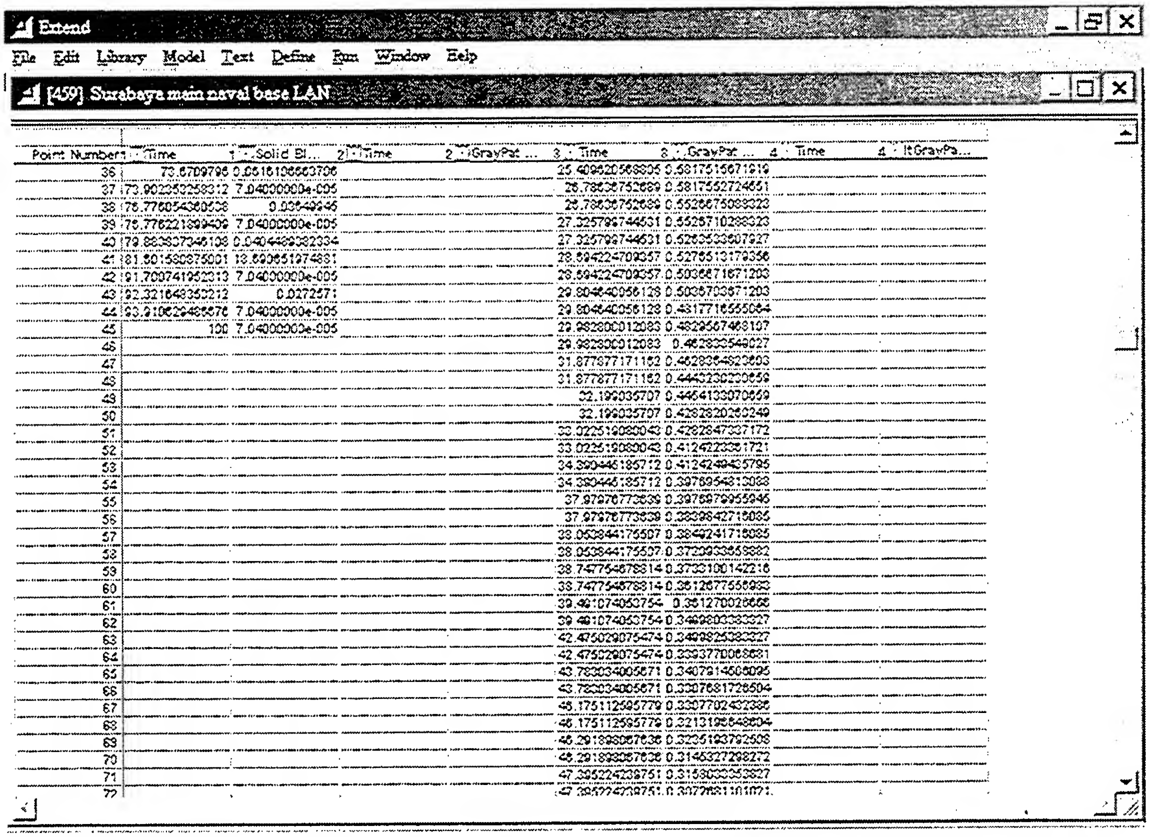


Run 0, The 1st LAN, Using Simulation Set Up 100, Mean 1 sec, ISDN 128 Kbps

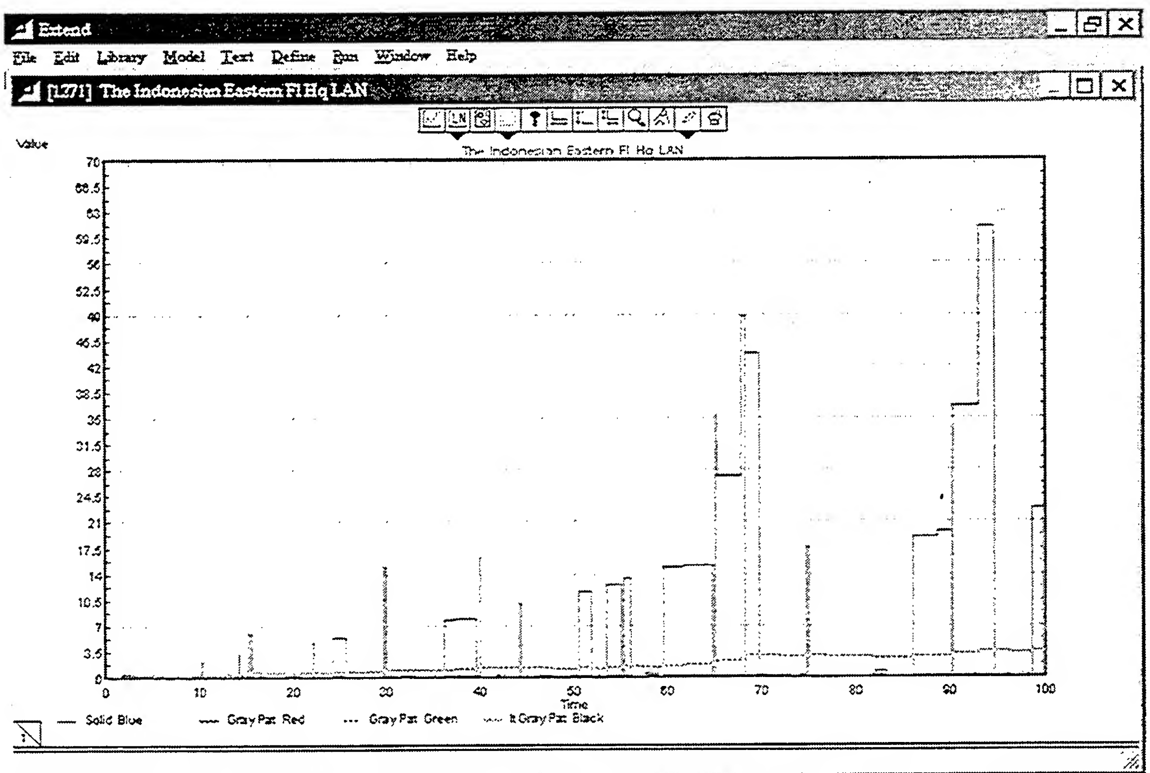


Point Number	1 Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ltGrayPa...
0	1.4839863227476	0.0867091462087			1.4839863227476	0.0867091462087		
1	5.3463593660015	7.04000000e-005			5.3463593660015	0.0867795452087		
2	5.414151075	2.9980155663411			5.3463593660015	0.0333897726043		
3	6.0035753	1.5685371102032			5.414151075	1.5313975552749		
4	7.8604622727035	7.04000000e-005			5.414151075	1.0209317035186		
5	13.762874825	2.8375306000908			6.0036753	1.5437774069178		
6	14.9384972546635	0.03649946			6.0036753	1.1578330551882		
7	15.802979440188	7.04000000e-005			7.8604622727035	1.1578508551882		
8	17.10719795	3.5106438558032			7.8804622727035	0.9262805241506		
9	17.8039805918913	7.04000000e-005			13.172204378513	0.9262948041506		
10	25.4098205688805	0.03649946			13.172204378513	0.7719121701255		
11	26.7863875268889	7.04000000e-005			13.371062038871	0.7719239034688		
12	28.694224709357	0.0272571			13.371062038871	0.6616490801076		
13	29.804640056128	7.04000000e-005			13.762874625	1.0870105744082		
14	29.982800012083	0.0272571			13.762874625	0.9336342528055		
15	31.877877171162	7.04000000e-005			14.9384972546535	0.9381986838555		
16	32.199035707	0.0272571			14.9384972546635	0.8339526078715		
17	33.0225190800043	7.04000000e-005			15.802979440186	0.8339604309937		
18	38.053844175507	0.0272571			15.802979440188	0.7505643870844		
19	38.747754678814	0.03649946			17.10719795	1.1015287525647		
20	39.491074053754	7.04000000e-005			17.10719795	1.0014806842406		
21	43.793034005671	0.0468786434655			17.8039805918913	1.0014670842408		
22	46.175112595779	7.04000000e-005			17.8039805918913	0.9180298272206		
23	46.291898067636	0.0769800038653			19.659985874322	0.9180356933372		
24	47.395224239751	0.0457418			19.659985874322	0.8474175835882		
25	48.466102922269	7.04000000e-005			19.800611730994	0.8474229789728		
26	50.278299625	11.381103003196			19.800611730994	0.7868927681891		
27	50.56258925	0.0938413246013			20.4010844712 4	0.7868977947805		
28	51.232281500804	7.04000000e-005			20.40108447124	0.7344379417765		
29	66.860203101359	0.0933081044053			22.647975339537	0.7344426351098		
30	69.434826753335	7.04000000e-005			22.647975339537	0.6885399704154		
31	70.347500475	0.0693620315259			23.11910836052	0.6885440704154		
32	70.610742370985	7.04000000e-005			23.11910836052	0.648041780391		
33	71.099280153436	0.0272571			23.543858492792	0.6480468015875		
34	71.718988946015	0.0457418			23.543858492792	0.6120433514804		
35	71.886222079251	7.04000000e-005			25.4098205688305	0.6140710987026		
36	73.6708796	0.0618106983708			25.4098205688805	0.5817515871919		

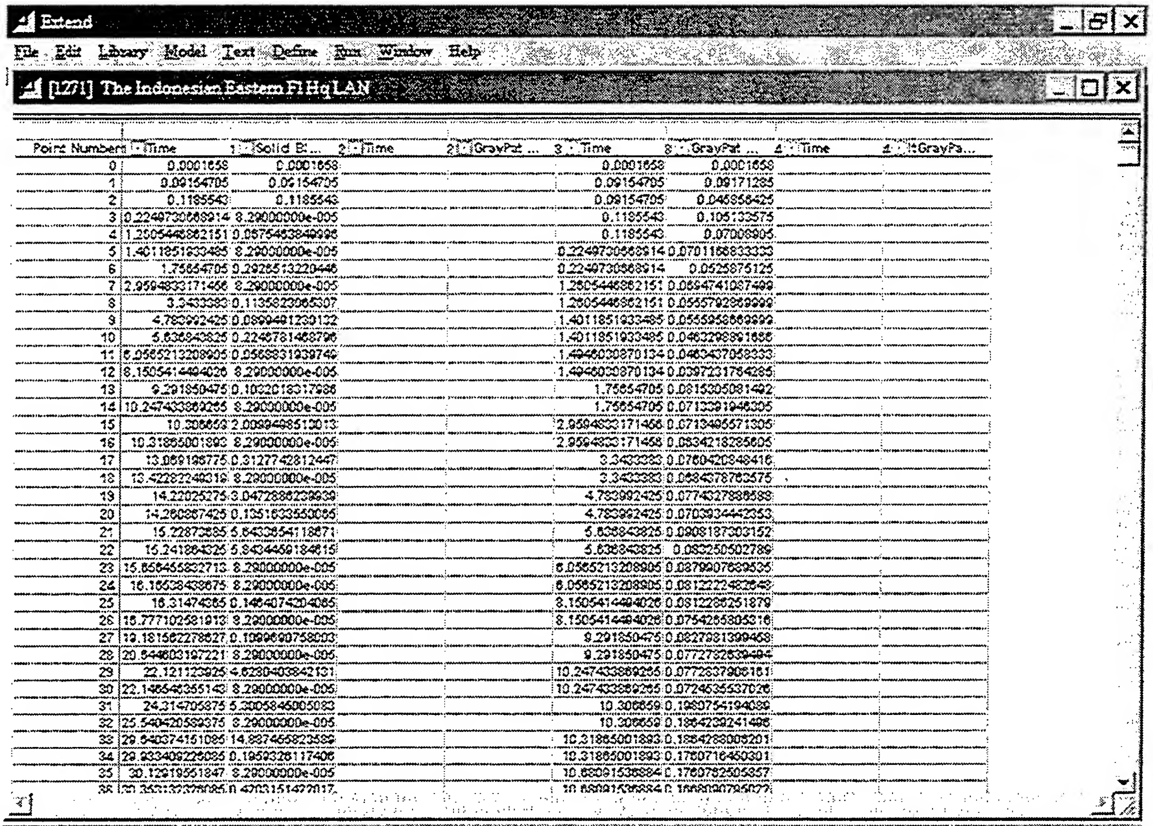
Run 0, Data Delay within the 1st LAN



Point Numbers	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
36	73.6709796	0.0616106663706			25.4096205688805	0.5817515671919		
37	73.9023532258312	7.04000000e-005			26.786367526809	0.5817552724651		
38	78.7760543605008	0.03649246			26.786367526809	0.5526675083323		
39	78.776221899409	7.04000000e-005			27.325799744631	0.5525710288323		
40	79.883837346108	0.0404469382334			27.325799744631	0.5263533607927		
41	81.501580875001	13.6906519748831			28.594224709357	0.5276513179356		
42	91.700741952313	7.04000000e-005			28.594224709357	0.5036871671203		
43	92.321648350212	0.0272571			29.804640056128	0.5036703671203		
44	93.910629486576	7.04000000e-005			29.804640056128	0.4317716555064		
45	100	7.04000000e-005			29.982800012083	0.4629567468107		
46					29.982800012083	0.462830548027		
47					31.877677171152	0.4628354923693		
48					31.877677171152	0.4443236220659		
49					32.199035707	0.4464133070659		
50					32.199035707	0.4282820260249		
51					33.022519080043	0.4282847337172		
52					33.022519080043	0.4124223361721		
53					34.390446185712	0.4124249435795		
54					34.390446185712	0.3976954813088		
55					37.979767773639	0.3976979955946		
56					37.979767773639	0.3839842718085		
57					38.053844175507	0.3849241718085		
58					38.053844175507	0.3720933659882		
59					38.747754878814	0.3733100142216		
60					38.747754878814	0.3612677556932		
61					39.491074053754	0.361270026666		
62					39.491074053754	0.3499803383327		
63					42.475029075474	0.3499925383327		
64					42.475029075474	0.3393770068631		
65					43.783034005671	0.3407914606095		
66					43.783034005671	0.3307681728504		
67					45.175112595779	0.3307702432386		
68					45.175112595779	0.3213195648604		
69					46.291898067636	0.3235193792508		
70					46.291898067636	0.3146327298272		
71					47.395224239751	0.3158003353827		
72					47.395224239751	0.3072681101071		



Run 0, The 2nd LAN, Using Simulation Set Up 100, Mean 1 sec, ISDN 128 Kbps



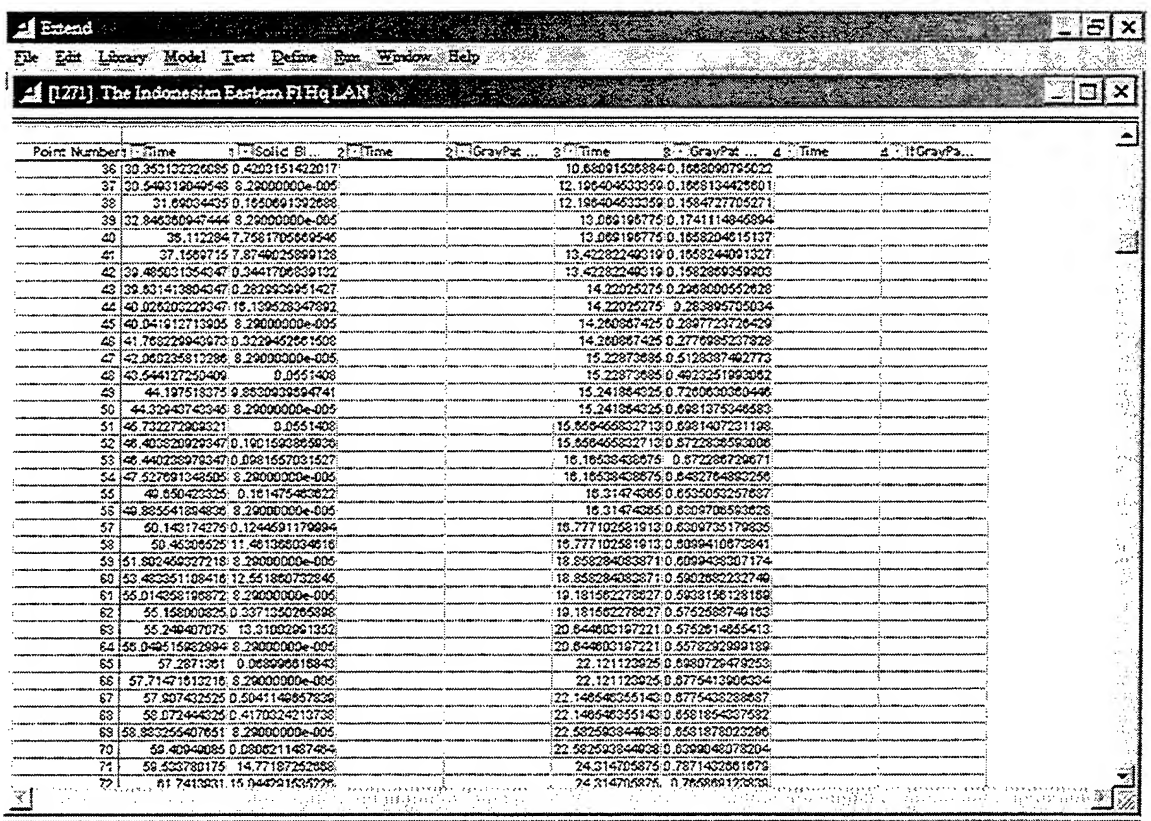
Extend

File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Numbers	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: GrayPa...
0	0.0001658	0.0001658			0.0001658	0.0001658		
1	0.09154705	0.09154705			0.09154705	0.09171285		
2	0.1185543	0.1185543			0.09154705	0.045856425		
3	0.2249730668914	8.29000000e-005			0.1185543	0.105133575		
4	1.2605446862151	0.0675463849995			0.1185543	0.07008905		
5	1.4011851933485	8.29000000e-005			0.2249730668914	0.0701168833333		
6	1.75654705	0.2926513220446			0.2249730668914	0.0525875125		
7	2.9594833171466	8.29000000e-005			1.2605446862151	0.0654741087499		
8	3.3433383	0.1135823965307			1.2605446862151	0.0555792869999		
9	4.783992425	0.0899481230122			1.4011851933485	0.0555958669999		
10	5.636843825	0.2246781468796			1.4011851933485	0.0463298891666		
11	6.0565213208905	0.0568831939749			1.4946030870134	0.0463407058333		
12	8.1505414494026	8.29000000e-005			1.4946030870134	0.0397231764285		
13	9.291850475	0.1032018317986			1.75654705	0.0815005081492		
14	10.247433869265	8.29000000e-005			1.75654705	0.0713391946305		
15	10.306659	2.0099498513013			2.9594833171466	0.0713496571305		
16	10.31865001893	8.29000000e-005			2.9594833171466	0.0834213285605		
17	13.069196775	0.3127742812447			3.3433383	0.0760420848416		
18	13.42282249319	8.29000000e-005			3.3433383	0.0684578763575		
19	14.22025275	3.0472886239939			4.783992425	0.0774327886589		
20	14.260867425	0.1351633550065			4.783992425	0.0703934442353		
21	15.22873685	5.6432854118671			5.636843825	0.0808187303152		
22	15.241864325	5.8434459184615			5.636843825	0.083250502789		
23	15.656465832713	8.29000000e-005			6.0565213208905	0.0879907609535		
24	16.16538438675	8.29000000e-005			6.0565213208905	0.0812222482643		
25	16.31474365	0.1464074204065			8.1505414494026	0.0812286251879		
26	16.777102581913	8.29000000e-005			8.1505414494026	0.0754265805216		
27	19.181562278627	0.1099690758003			9.291850475	0.0827981399468		
28	20.644603197221	8.29000000e-005			9.291850475	0.0772732639494		
29	22.121123925	4.6230403842161			10.247433869265	0.0772837906161		
30	22.146546355143	8.29000000e-005			10.247433869265	0.0724535537026		
31	24.314705875	5.3305846005083			10.306659	0.1980754194089		
32	25.540420589375	8.29000000e-005			10.306659	0.1864239241486		
33	29.640374151085	14.837465823589			10.31865001893	0.1864288006201		
34	29.933409226085	0.1959326117406			10.31865001893	0.1760716450301		
35	30.12919551847	8.29000000e-005			10.68091536884	0.1760782505857		
36	30.352132326085	0.4203151422017			10.68091536884	0.1668090795022		

Run 0, Data Delay within the 2nd LAN

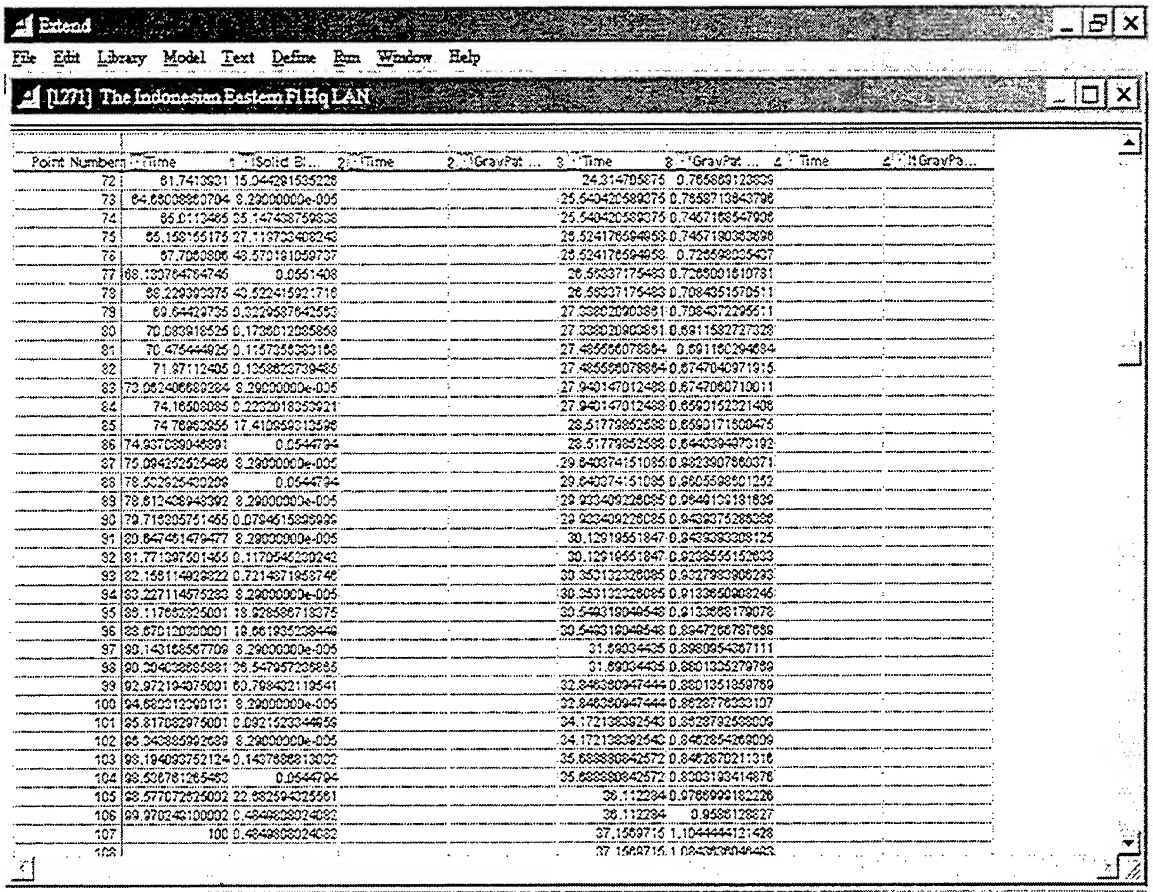


Extend

File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Numbers	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: GrayPa...
36	30.352132326085	0.4203151422017			10.68091536884	0.1668090795022		
37	30.549312049546	8.29000000e-005			12.196404633359	0.1668134425601		
38	31.69034435	0.1650691392688			12.196404633359	0.1584727705271		
39	32.846360947444	8.29000000e-005			13.069196775	0.1741114846894		
40	35.112294	7.7581705669546			13.069196775	0.1658204615137		
41	37.1569715	7.8749025899128			13.42282249319	0.1658244091327		
42	39.485031354347	0.3441706839132			13.42282249319	0.1582859359903		
43	39.831413804347	0.2829939951427			14.22025275	0.2268000552628		
44	40.026203229347	15.139528347892			14.22025275	0.283895705034		
45	40.041912713905	8.29000000e-005			14.260867425	0.2897723726429		
46	41.768229943973	0.3229462561508			14.260867425	0.2770985237328		
47	42.060235813286	8.29000000e-005			15.22873685	0.5128337492773		
48	43.544127250409	0.0551408			15.22873685	0.4923251993062		
49	44.197518375	9.8530939594741			15.241864325	0.7260630360446		
50	44.329437423345	8.29000000e-005			15.241864325	0.6981375346583		
51	46.732272803321	0.0551408			15.656465832713	0.6981407231198		
52	46.403820929347	0.1901593865936			15.656465832713	0.8722838593008		
53	46.440238978347	0.0981657031527			16.16538438675	0.872286729671		
54	47.527691348505	8.29000000e-005			16.16538438675	0.8432764393256		
55	49.650423325	0.181475483822			16.31474365	0.8535053257687		
56	49.835641884836	8.29000000e-005			16.31474365	0.8309708593623		
57	50.143174275	0.1244691179894			16.777102581913	0.8309735179835		
58	50.46306525	11.481368034616			16.777102581913	0.8099410673841		
59	51.802469327218	8.29000000e-005			18.858284083871	0.6099438307174		
60	53.483351108416	12.551860732846			18.858284083871	0.5902682232749		
61	55.014358196872	8.29000000e-005			19.181562278627	0.5938156128189		
62	55.158000825	0.3371350265398			19.181562278627	0.5752568749153		
63	55.249407075	13.310829981352			20.644603197221	0.5752614855413		
64	56.049515932994	8.29000000e-005			20.644603197221	0.5578292999189		
65	57.2871361	0.0689966816843			22.121123925	0.8980729479253		
66	57.714716613216	8.29000000e-005			22.121123925	0.8775413906334		
67	57.907432525	0.5041148657839			22.146546355143	0.8775433238637		
68	58.072444325	0.4170324213738			22.146546355143	0.8581854037532		
69	58.833255407651	8.29000000e-005			22.582593844938	0.8581878023296		
70	59.40940085	0.0806211487464			22.582593844938	0.8399048078204		
71	59.533780175	14.77187252658			24.314705875	0.7871432661679		
72	61.7413931	15.044921636776			24.314705875	0.765869123839		



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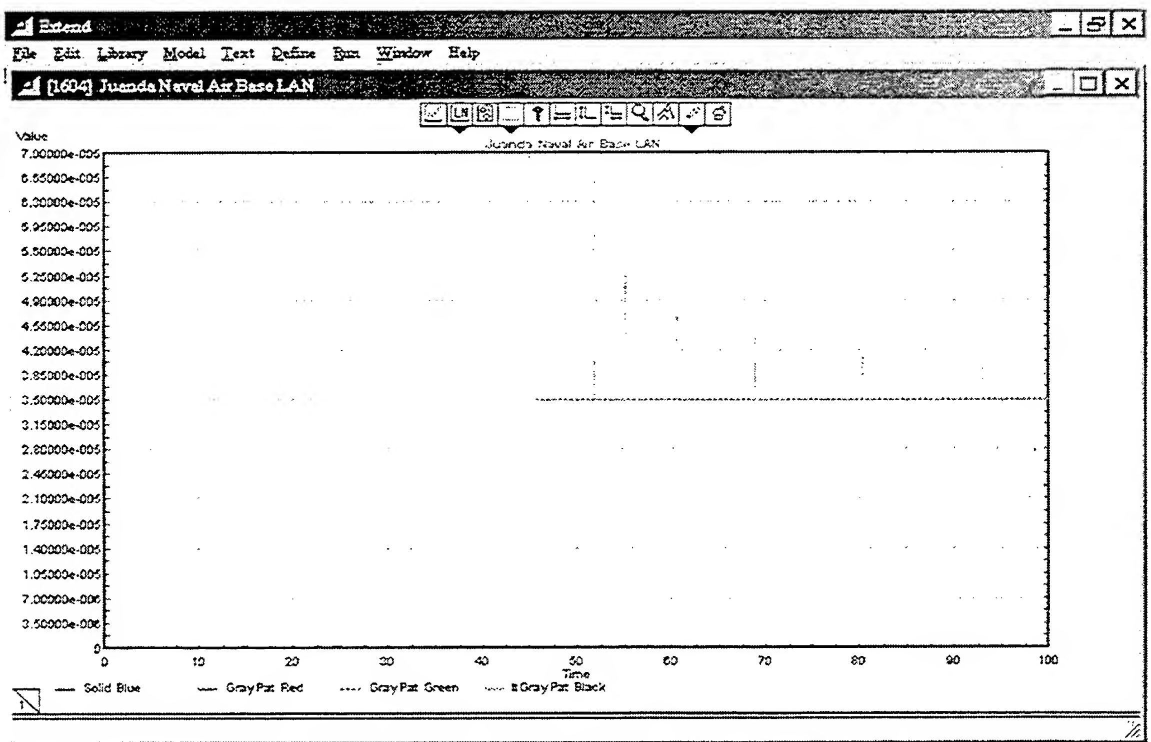
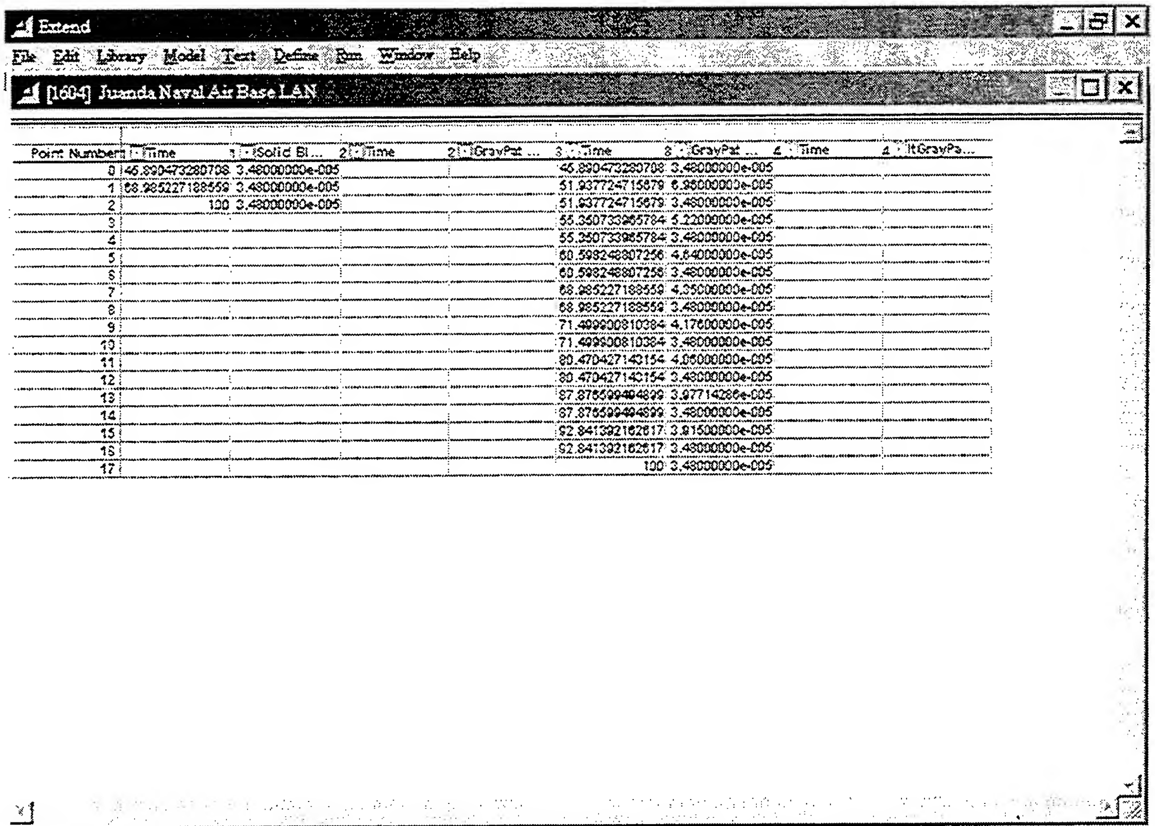
File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Numbers	1 Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 GrayPa...
72	61.7413631	15.044281535228			24.314705875	0.765689123639		
73	64.6800880704	8.29000000e-005			25.540420589375	0.7658713843798		
74	65.0113485	35.147438759838			25.540420589375	0.7467168547906		
75	65.158155175	27.119733408243			26.524176594958	0.7467180383898		
76	67.7060806	43.570181059737			26.524176594958	0.725698035437		
77	68.130764764745	0.0551403			26.56337175483	0.7265001810781		
78	68.229390375	40.522415921718			26.56337175483	0.7084351570511		
79	69.6442973 5	0.322958764 2553			27.338020903881	0.7084372295511		
80	70.083918525	0.1738012085858			27.338020903881	0.6911582727328		
81	70.475444825	0.1157358383188			27.485560078864	0.691180294684		
82	71.87112405	0.1358823739485			27.485598078864	0.6747040971915		
83	73.082406689284	8.29000000e-005			27.940147012488	0.6747060710011		
84	74.16508085	0.2232018353921			27.940147012488	0.6590152321408		
85	74.76863856	17.410859313598			28.51779852588	0.6590171500475		
86	74.937089046881	0.0544794			28.51779852588	0.6440394873192		
87	75.094252525488	8.29000000e-005			29.840374151085	0.9823907860371		
88	78.502925430208	0.0544794			29.840374151085	0.9605598801252		
89	78.812408948392	8.29000000e-005			29.933409228085	0.9649139131839		
90	79.718305751465	0.0794615898896			29.933409228085	0.9439375288388		
91	80.847451479477	8.29000000e-005			30.12918561847	0.9439380308125		
92	81.771387501465	0.1170546230242			30.12918561847	0.9238556152833		
93	82.158114828822	0.7214871858748			30.353132328085	0.9327983906293		
94	83.227114575283	8.29000000e-005			30.353132328085	0.9133850903246		
95	88.117882825001	18.828588718375			30.549318048548	0.9133868179078		
96	88.670120300001	18.661935238446			30.549318048548	0.8947266787688		
97	90.143188587709	8.29000000e-005			31.89034435	0.8960854367111		
98	90.304038685881	36.547957236885			31.89034435	0.8801335279789		
99	92.972194075001	60.798432119541			32.848380947444	0.8801351859789		
100	94.682312398131	8.29000000e-005			32.848380947444	0.8828776333107		
101	95.817082975001	0.0921523344856			34.172138382543	0.8828782598009		
102	95.340885892639	8.29000000e-005			34.172138382543	0.8462854268009		
103	98.194093752124	0.1437688813002			35.688880842572	0.8462870211318		
104	98.538781265493	0.0544794			35.688880842572	0.8303193414878		
105	98.577072525002	22.982594325561			36.112284	0.9765999182226		
106	99.970248100002	0.4849808024082			36.112284	0.9588128827		
107	100	0.4849808024082			37.1569715	1.1044444121428		
108					37.1569715	[illegible]		

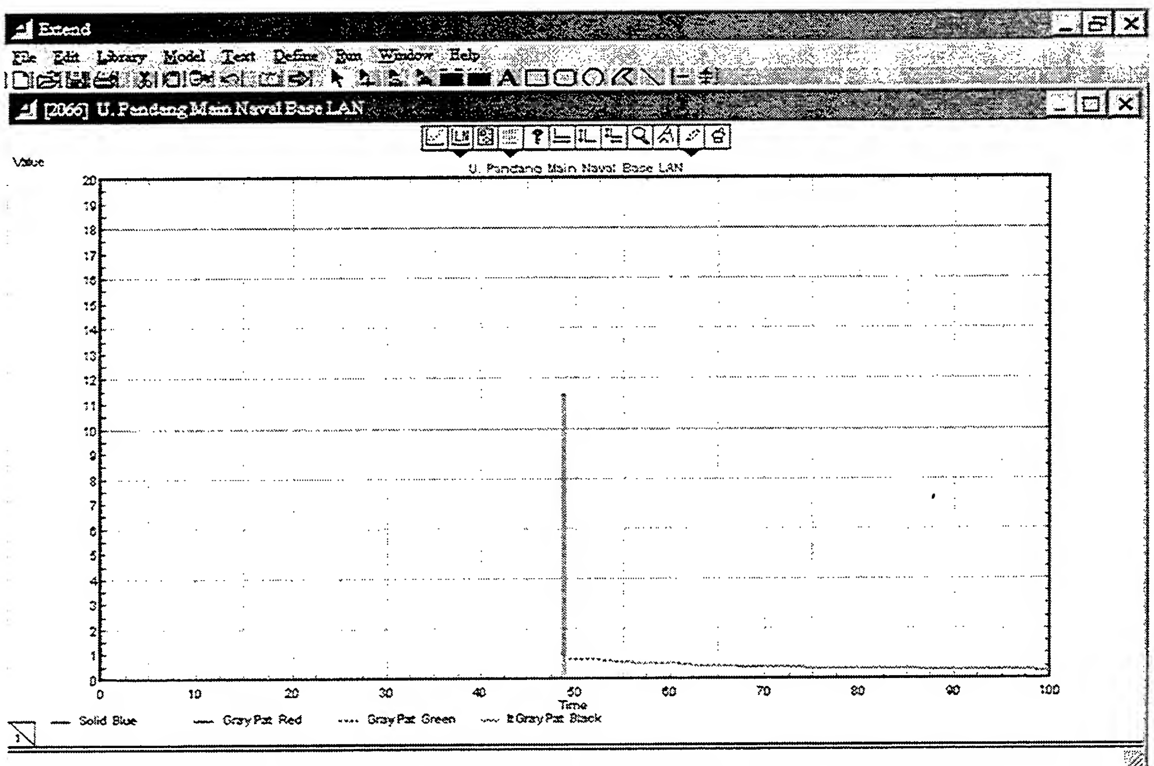


Run 0, The 3rd LAN,

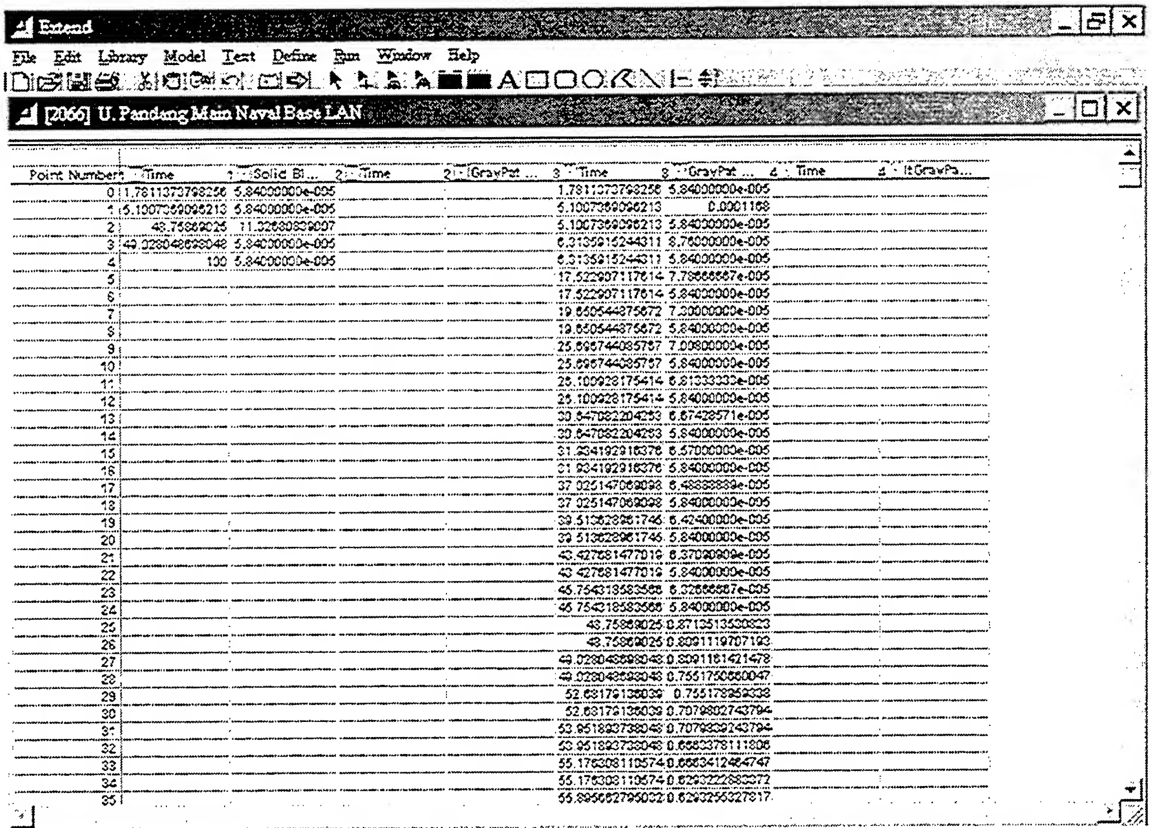


Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ItGrayPa...
0	46.890473280708	3.48000000e-005			46.890473280708	3.48000000e-005		
1	68.985227188559	3.48000000e-005			51.937724715879	6.96000000e-005		
2	100	3.48000000e-005			51.937724715879	3.48000000e-005		
3					55.350733965784	5.22000000e-005		
4					55.350733965784	3.48000000e-005		
5					60.598248807256	4.64000000e-005		
6					60.598248807256	3.48000000e-005		
7					68.985227188559	4.35000000e-005		
8					68.985227188559	3.48000000e-005		
9					71.499900810384	4.17600000e-005		
10					71.499900810384	3.48000000e-005		
11					80.470427140154	4.06000000e-005		
12					80.470427140154	3.48000000e-005		
13					87.876599494899	3.97714286e-005		
14					87.876599494899	3.48000000e-005		
15					92.841392162617	3.91500000e-005		
16					92.841392162617	3.48000000e-005		
17					100	3.48000000e-005		

Run 0, Data Delay within the 3rd LAN



Run 0, The 4th LAN



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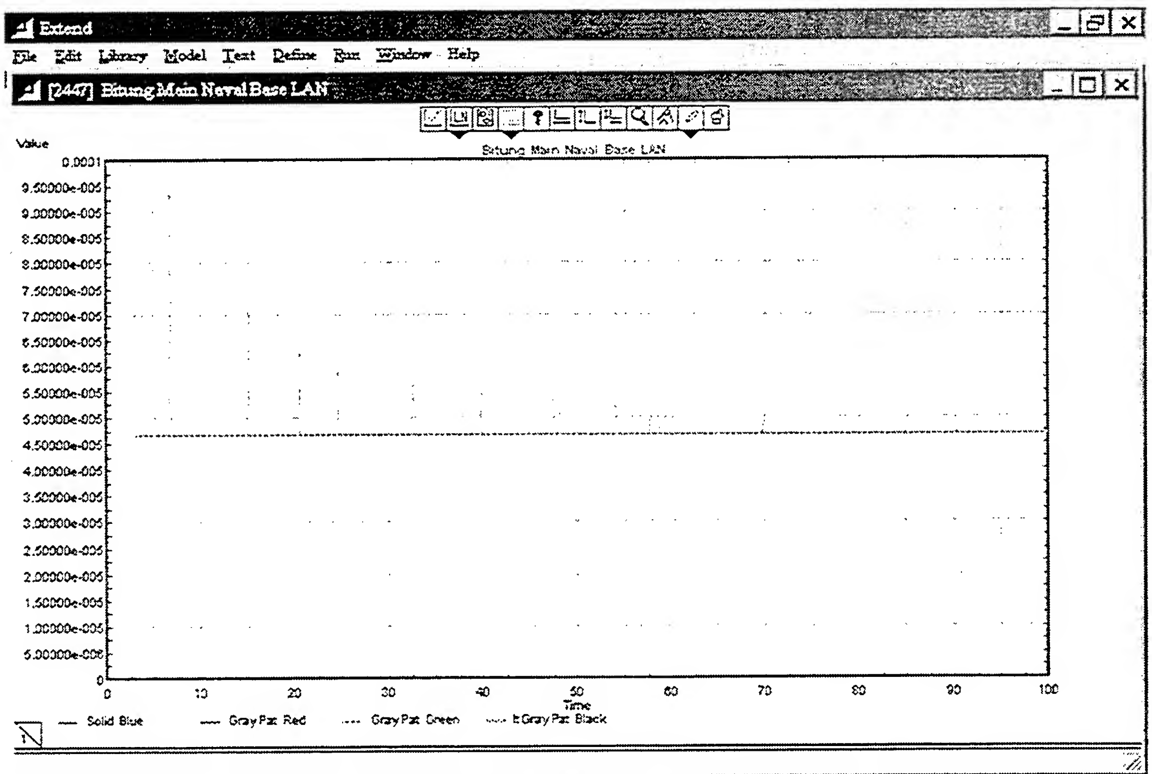
File Edit Library Model Text Define Run Window Help

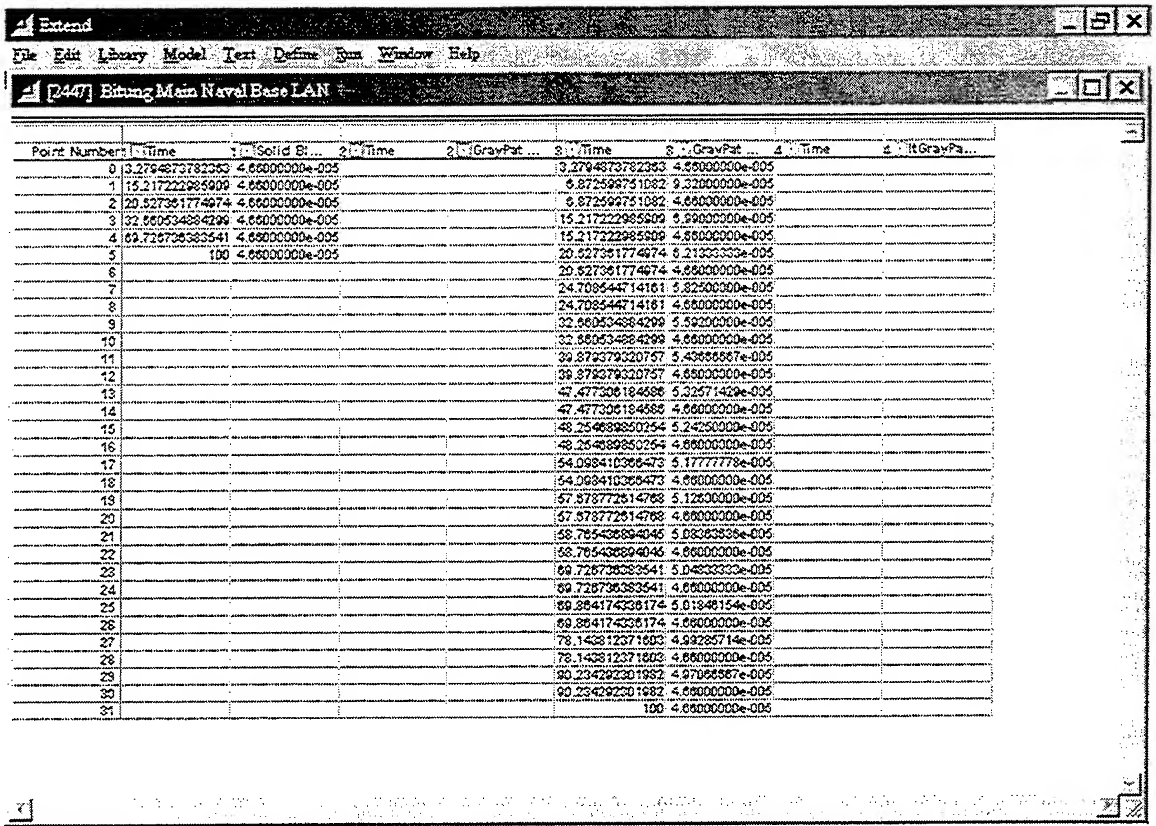
[2066] U. Pandang Main Naval Base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
0	1.7811373798256	5.84000000e-005			1.7811373798256	5.84000000e-005		
1	5.1007369096213	5.84000000e-005			5.1007369096213	0.0001168		
2	43.75869025	11.32680639007			5.1007369096213	5.84000000e-005		
3	49.028048698048	5.84000000e-005			6.3135915244311	8.76000000e-005		
4	100	5.84000000e-005			6.3135915244311	5.84000000e-005		
5					17.522907117614	7.78666667e-005		
6					17.522907117614	5.84000000e-005		
7					19.650544875672	7.30000000e-005		
8					19.650544875672	5.84000000e-005		
9					25.696744085757	7.00800000e-005		
10					25.696744085757	5.84000000e-005		
11					26.100928175414	6.81333333e-005		
12					26.100928175414	5.84000000e-005		
13					30.647082204253	6.67428571e-005		
14					30.647082204253	5.84000000e-005		
15					31.934192916376	6.57000000e-005		
16					31.934192916376	5.84000000e-005		
17					37.025147069098	6.48888889e-005		
18					37.025147069098	5.84000000e-005		
19					39.513628961746	6.42400000e-005		
20					39.513628961746	5.84000000e-005		
21					43.427681477019	6.37090909e-005		
22					43.427681477019	5.84000000e-005		
23					46.754318583566	6.32666667e-005		
24					46.754318583566	5.84000000e-005		
25					48.75869025	0.87135135308823		
26					48.75869025	0.8091119707193		
27					49.028048698048	0.8091181421478		
28					49.028048698048	0.7551750660047		
29					52.68179136039	0.7551789659333		
30					52.68179136039	0.7079802743794		
31					53.951893738048	0.7079309243794		
32					53.951893738048	0.6663378111806		
33					55.176308110574	0.6663412464747		
34					55.176308110574	0.6293222683372		
35					55.895662795032	0.6293256327817		

Run 0, Data Delay within the 4[th] LAN



Run 0, The 5[th] LAN



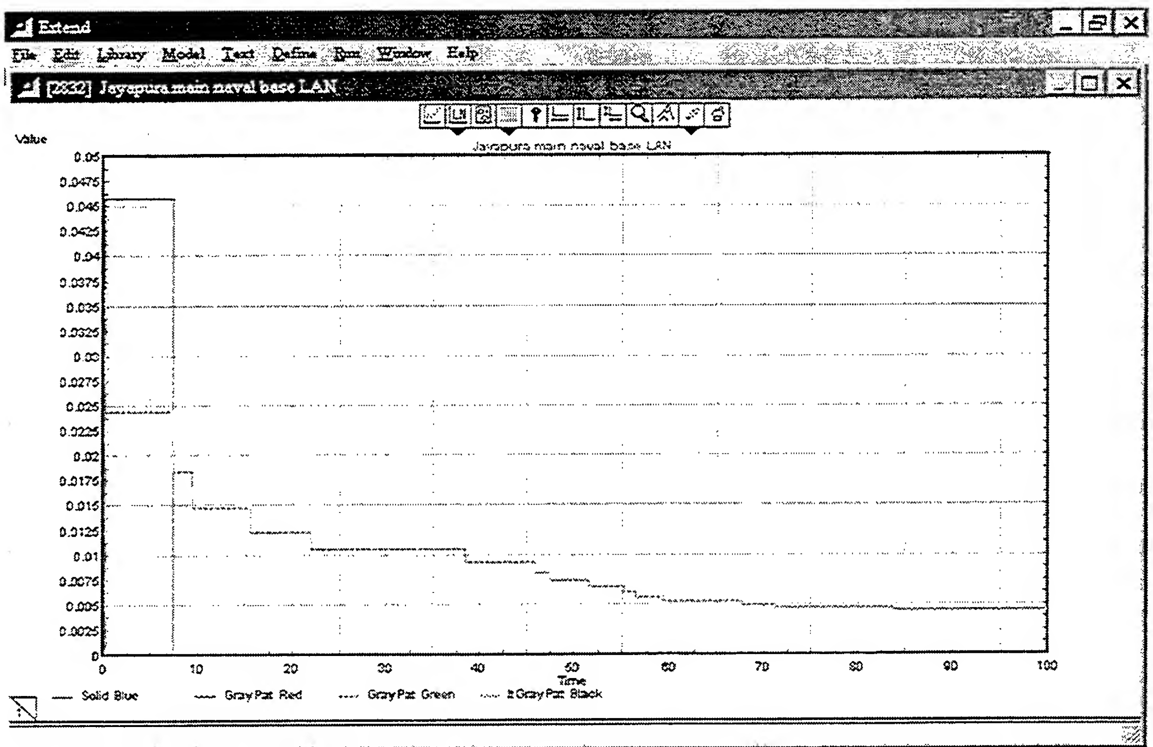
Extend

File Edit Library Model Text Define Run Window Help

[2447] Bitung Main Naval Base LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ltGrayPa...
0	3.2794873782363	4.66000000e-005			3.2794873782363	4.66000000e-005		
1	15.217222985909	4.66000000e-005			6.872599751082	9.32000000e-005		
2	20.527361774974	4.66000000e-005			6.872599751082	4.66000000e-005		
3	32.660534884299	4.66000000e-005			15.217222985909	5.99000000e-005		
4	69.726736383541	4.66000000e-005			15.217222985909	4.66000000e-005		
5	100	4.66000000e-005			20.527361774974	5.21333333e-005		
6					20.527361774974	4.66000000e-005		
7					24.708544714161	5.82500000e-005		
8					24.708544714161	4.66000000e-005		
9					32.660534884299	5.59200000e-005		
10					32.660534884299	4.66000000e-005		
11					39.879379320757	5.43666667e-005		
12					39.879379320757	4.66000000e-005		
13					47.477306184686	5.32571429e-005		
14					47.477306184686	4.66000000e-005		
15					48.254689850254	5.24250000e-005		
16					48.254689850254	4.66000000e-005		
17					54.098410366473	5.17777778e-005		
18					54.098410366473	4.66000000e-005		
19					57.578772514768	5.12600000e-005		
20					57.578772514768	4.66000000e-005		
21					58.765436894046	5.08363636e-005		
22					58.765436894046	4.66000000e-005		
23					69.726736383541	5.04833333e-005		
24					69.726736383541	4.66000000e-005		
25					69.864174336174	5.01846154e-005		
26					69.864174336174	4.66000000e-005		
27					78.143812371603	4.99285714e-005		
28					78.143812371603	4.66000000e-005		
29					90.234292301982	4.97066667e-005		
30					90.234292301982	4.66000000e-005		
31					100	4.66000000e-005		

Run 0, Data Delay within the 5th LAN



Run 0, The 6th LAN

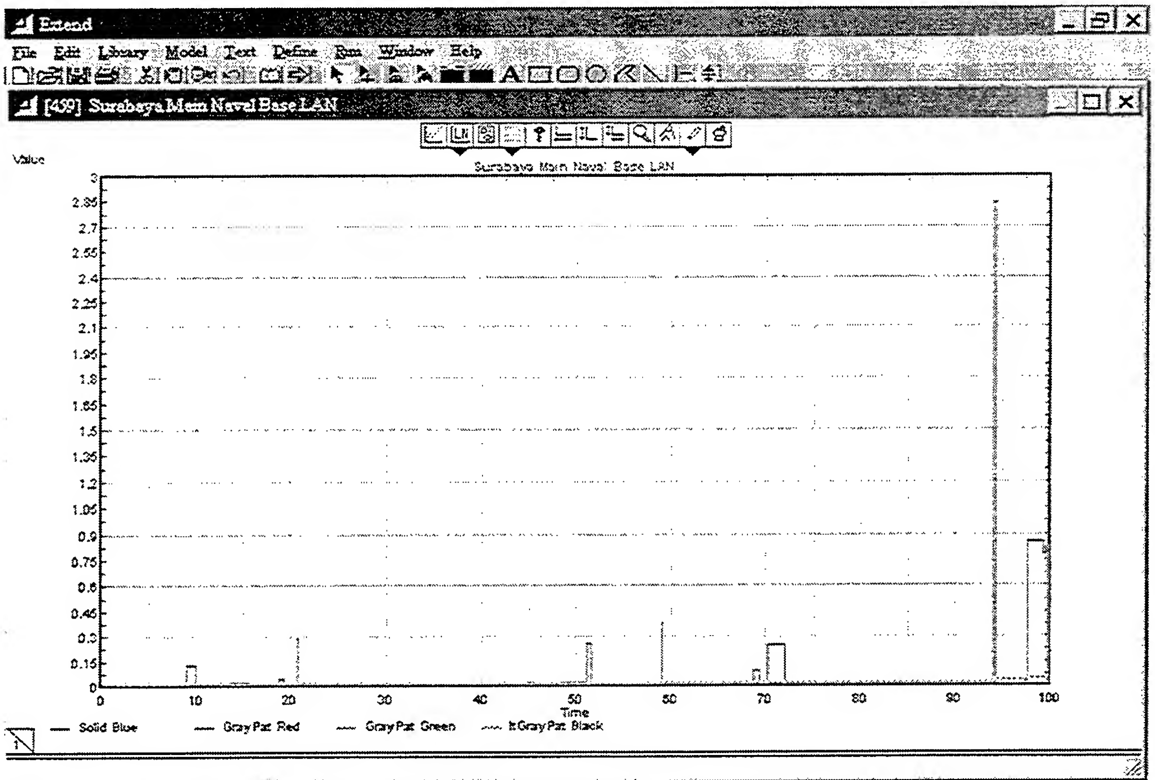
Extend

File Edit Library Model Text Define Run Window Help

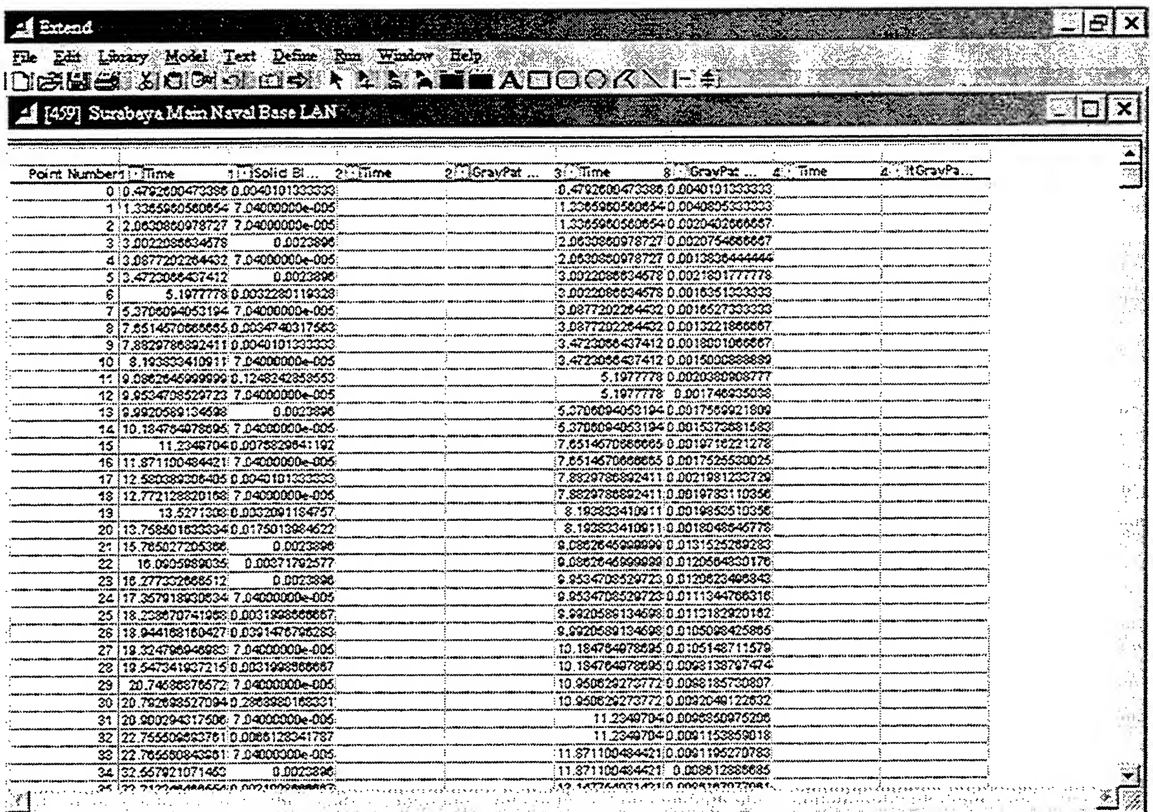
[2832] Jayapura main naval base LAN

Point Number	1 : Time	1 : Solid B...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : GrayPa...
0	4.66000000e-005	4.66000000e-005			4.66000000e-005	4.66000000e-005		
1	0.0272571	0.0272571			0.0272571	0.0273037		
2	0.0457418	0.0457418			0.0272571	0.01365185		
3	7.514627969049	4.66000000e-005			0.0457418	0.03652275		
4	9.600220325364	4.66000000e-005			0.0457418	0.0243485		
5	21.98826480965	4.66000000e-005			7.514627969049	0.0243840333333		
6	38.611095411263	4.66000000e-005			7.514627969049	0.018273025		
7	67.710668184748	4.66000000e-005			9.600220325364	0.018284675		
8	100	4.66000000e-005			9.600220325364	0.01462774		
9					15.559433068717	0.01463706		
10					15.559433068717	0.01219755		
11					21.98826480965	0.0122053166667		
12					21.98826480965	0.0104617		
13					38.611095411263	0.0104683571429		
14					38.611095411263	0.0091598125		
15					46.008346152927	0.0091656375		
16					46.008346152927	0.0081472333333		
17					47.530628270973	0.0081524111111		
18					47.530628270973	0.00733717		
19					51.66463423349	0.00734183		
20					51.66463423349	0.0066743909091		
21					56.282819607517	0.0066788272727		
22					56.282819607517	0.006122075		
23					58.559172569527	0.0061259583333		
24					58.559172569527	0.0056547307692		
25					59.222276358204	0.0056583153846		
26					59.222276358204	0.00525415		
27					67.710668184748	0.0052574785714		
28					67.710668184748	0.00490698		
29					71.413162727646	0.0049100866667		
30					71.413162727646	0.00460320625		
31					83.902275910329	0.00460611875		
32					83.902275910329	0.0043351705882		
33					100	0.0043351705882		

Run 0, Data Delay within the 6th LAN

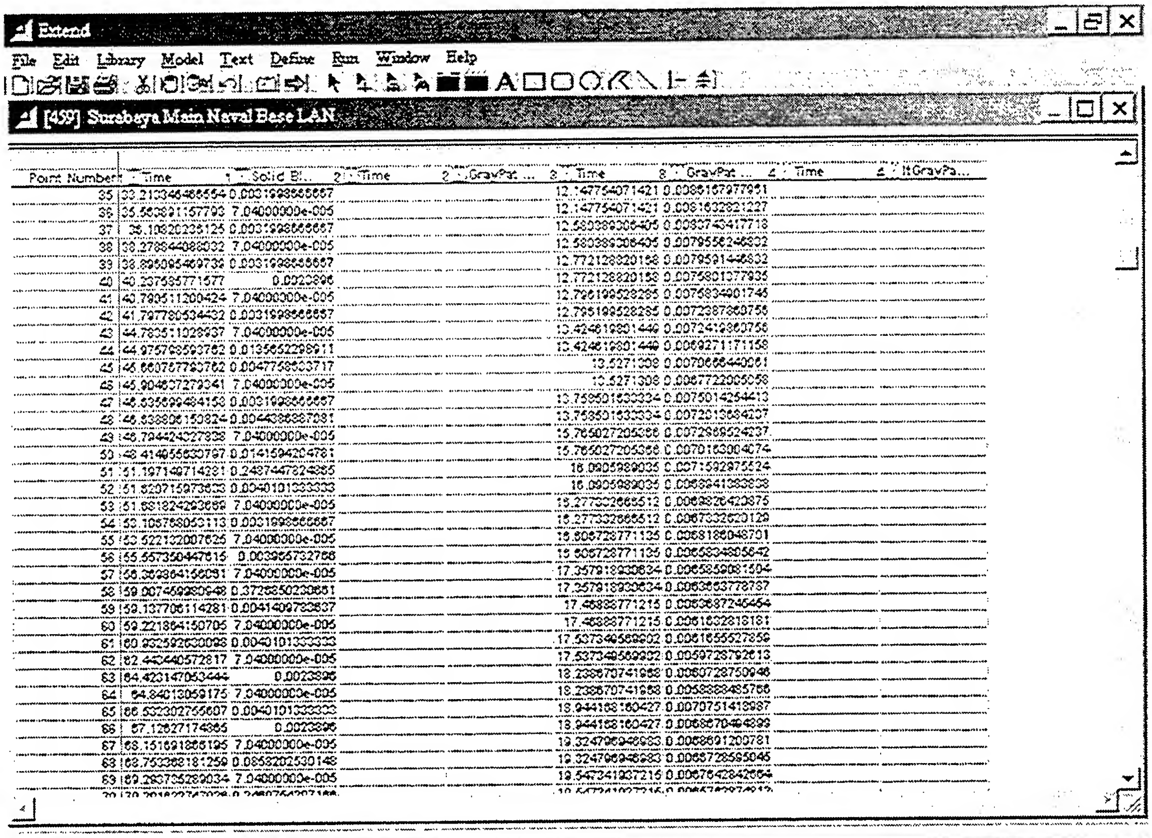


Run 1, The 1st LAN, Using Simulation Set Up 100, Mean 1 sec, T1 Line 1.544 Mbps



Point Number	1 Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ltGrayPa...
0	0.4792600473386	0.0040101333333			0.4792600473386	0.0040101333333		
1	1.3365960560654	7.04000000e-005			1.3365960560654	0.0040805333333		
2	2.0630860978727	7.04000000e-005			1.3365960560654	0.0020402666667		
3	3.0022088634678	0.0023896			2.0630860978727	0.0020754666667		
4	3.0877202264432	7.04000000e-005			2.0630860978727	0.0013936444444		
5	3.4723066437412	0.0023896			3.0022088634678	0.0021801777778		
6	5.1977778	0.0032280119328			3.0022088634678	0.0016351333333		
7	5.3706094053194	7.04000000e-005			3.0877202264432	0.0016527333333		
8	7.6514670666665	0.0034740317563			3.0877202264432	0.0013221866667		
9	7.8829786892411	0.0040101333333			3.4723066437412	0.0018001066667		
10	8.1938334109911	7.04000000e-005			3.4723066437412	0.0015000888889		
11	9.0862646999999	0.1248242858553			5.1977778	0.0020380908777		
12	9.9534708529723	7.04000000e-005			5.1977778	0.0017469350368		
13	9.9920589134698	0.0023896			5.3706094053194	0.0017559921809		
14	10.184764978695	7.04000000e-005			5.3706094053194	0.0015373681583		
15	11.2349704	0.0075829641192			7.6514670666665	0.0019718221278		
16	11.871100484421	7.04000000e-005			7.6514670666665	0.0017525530025		
17	12.580389206405	0.0040101333333			7.8829786892411	0.0021981230729		
18	12.772128820168	7.04000000e-005			7.8829786892411	0.0019783110356		
19	13.5271308	0.0032091184757			8.1938334109911	0.0019853510356		
20	13.758501633334	0.0175013984622			8.1938334109911	0.0018048646778		
21	15.765027205388	0.0023896			9.0862646999999	0.0131525289283		
22	16.0005989035	0.00371792577			9.0862646999999	0.0120564830176		
23	16.277332668512	0.0023896			9.9534708529723	0.0120623498343		
24	17.357918930534	7.04000000e-005			9.9534708529723	0.0111344766316		
25	18.238670741959	0.0031998666667			9.9920589134698	0.0113182920162		
26	18.944168160427	0.0391476796283			9.9920589134698	0.0105098425865		
27	19.324796946983	7.04000000e-005			10.184764978695	0.0105148711579		
28	19.547341937215	0.0031998666667			10.184764978695	0.0098138797474		
29	20.745688765572	7.04000000e-005			10.950629273772	0.0098185730807		
30	20.792693527094	0.2863980168331			10.950629273772	0.0092049122632		
31	20.900294317506	7.04000000e-005			11.2349704	0.0096850975206		
32	22.755609663761	0.0086128341787			11.2349704	0.0091153859018		
33	22.765680843861	7.04000000e-005			11.871100484421	0.0091195270783		
34	32.667921071463	0.0023896			11.871100484421	0.008612885685		
35	[illegible]	[illegible]			[illegible]	[illegible]		

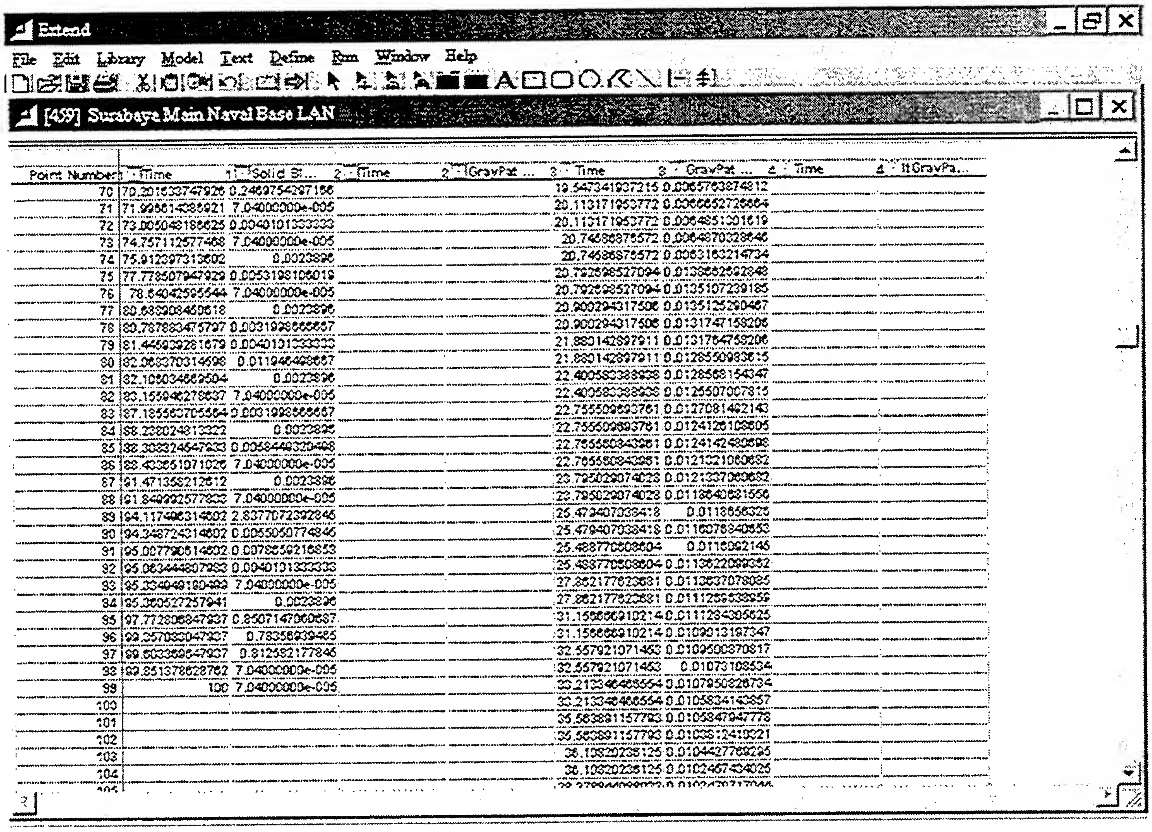
Run 1, Data Delay within the 1st LAN


Extend

File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

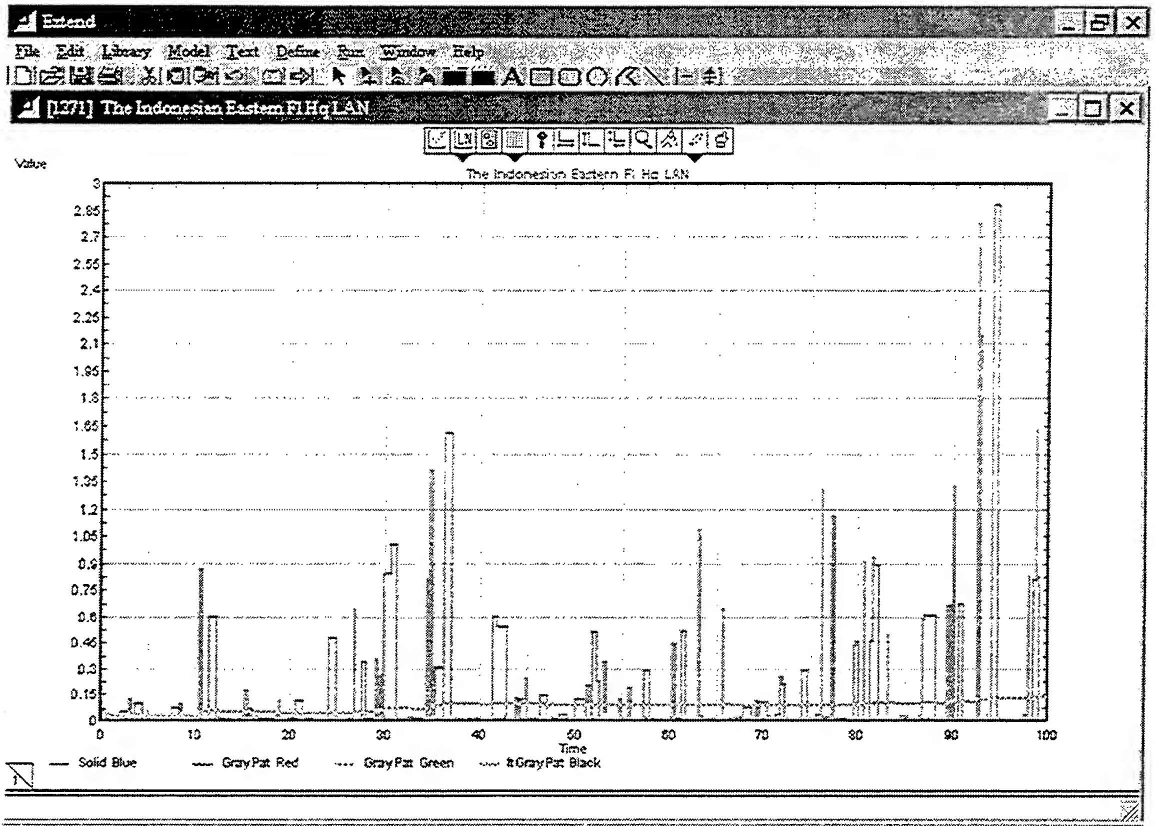
Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
35	33.213346486554	0.0031998666667			12.147754071421	0.0085167977951		
36	35.563891157793	7.04000000e-005			12.147754071421	0.0081632821227		
37	36.10320236125	0.0031998666667			12.580389306405	0.0080743417718		
38	38.278644088032	7.04000000e-005			12.580389306405	0.0079556246302		
39	38.895095469732	0.0031998666667			12.772128820158	0.0079591446632		
40	40.237585771577	0.0023896			12.772128820158	0.0075801377935		
41	40.790511200424	7.04000000e-005			12.795199528285	0.0075834901746		
42	41.797780534432	0.0031998666667			12.795199528285	0.0072387360756		
43	44.780511028937	7.04000000e-005			13.424619801440	0.0072419360756		
44	44.975798593782	0.0135652298911			13.424619801440	0.0069271171158		
45	45.660787790762	0.0047758603717			13.5271309	0.0070668440061		
46	45.904807279341	7.04000000e-005			13.5271309	0.0067722005058		
47	46.835699484158	0.0031998666667			13.758501630334	0.0075014254413		
48	46.838806150824	0.0044386887081			13.758501630334	0.0072013684207		
49	46.794424027938	7.04000000e-005			15.765027205368	0.0072969524237		
50	48.414956630797	0.0141594204781			15.765027205368	0.0070163004074		
51	51.197149714281	0.2487447824365			16.0905989035	0.0071592975524		
52	51.820715973633	0.0040101333333			16.0905989035	0.0068941383838		
53	51.881824293669	7.04000000e-005			16.277302666512	0.0068826420875		
54	53.105788050113	0.0031998666667			16.277302666512	0.0067332620129		
55	53.522132007625	7.04000000e-005			16.506728771135	0.0068186048701		
56	55.557350447615	0.0039667327768			16.506728771135	0.0065934805642		
57	56.369364156091	7.04000000e-005			17.357918930634	0.0065859081504		
58	59.007469980948	0.3728850230661			17.357918930634	0.0063663778787		
59	59.137706114281	0.0041409783637			17.46888771215	0.0063687246464		
60	59.221864150705	7.04000000e-005			17.46888771215	0.0061632818181		
61	60.932592630098	0.0040101333333			17.537349569902	0.0061655527859		
62	62.440440572817	7.04000000e-005			17.537349569902	0.0059728792613		
63	64.423147053444	0.0023896			18.238670741958	0.0060728750946		
64	64.84013059175	7.04000000e-005			18.238670741958	0.0058888485766		
65	66.532302755607	0.0040101333333			18.944158160427	0.0070751418987		
66	67.12627174365	0.0023896			18.944158160427	0.0068870494899		
67	68.151691865195	7.04000000e-005			19.324796946983	0.0068691200781		
68	68.753368181259	0.0853202530148			19.324796946983	0.0065728595045		
69	69.283736289034	7.04000000e-005			19.547341937215	0.0067642842664		


Extend

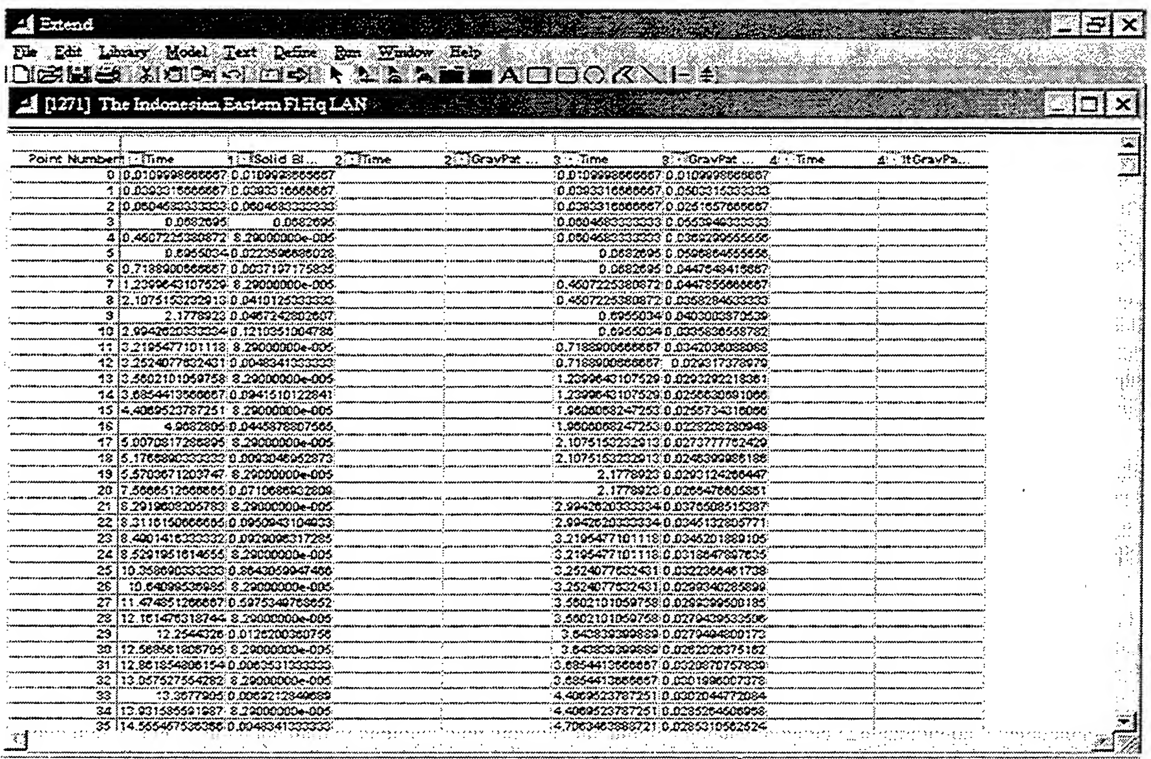
File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
70	70.201633747926	0.2469754297156			19.547341937215	0.0065763874812		
71	71.998614086921	7.04000000e-005			20.113171953772	0.0066652726664		
72	73.005048186625	0.0040101333333			20.113171953772	0.0064651301619		
73	74.757112577468	7.04000000e-005			20.74686875572	0.0064870328646		
74	75.912397313602	0.0023896			20.74686875572	0.0063163214734		
75	77.778507947929	0.0053198106019			20.792898527094	0.0138662692848		
76	78.84042595544	7.04000000e-005			20.792898527094	0.0135107239185		
77	80.683908460618	0.0023896			20.900294317506	0.0135125290467		
78	80.787883475797	0.0031998666667			20.900294317506	0.0131747158206		
79	81.446939281679	0.0040101333333			21.880142897911	0.0131764759206		
80	82.068370314698	0.0119464498667			21.880142897911	0.0128550983615		
81	82.105034689504	0.0023896			22.400583388938	0.0128568154347		
82	83.155946278637	7.04000000e-005			22.400583388938	0.0125507007815		
83	87.185560705564	0.0031998666667			22.755509693761	0.0127081462143		
84	88.238024813222	0.0023896			22.755509693761	0.0124126108605		
85	88.308324647933	0.0058449320498			22.765550843961	0.0124142480698		
86	88.433651071026	7.04000000e-005			22.765550843961	0.0121321080632		
87	91.471358212612	0.0023896			23.795029074023	0.0121337060682		
88	91.849992577833	7.04000000e-005			23.795029074023	0.0118640681556		
89	94.117496314602	2.8377072392846			25.479407033418	0.0118656328		
90	94.348724314602	0.0055050774846			25.479407033418	0.0116078840653		
91	95.007790614602	0.0078859216853			25.488770508604	0.0116092145		
92	95.063444807983	0.0040101333333			25.488770508604	0.0113622099352		
93	95.334949180499	7.04000000e-005			27.862177823681	0.0113637078085		
94	95.360527257941	0.0023896			27.862177823681	0.0111259533959		
95	97.772806847937	0.8507147060687			31.156686910214	0.0111284305625		
96	99.057033047937	0.78358939465			31.156686910214	0.0109013197347		
97	99.603369647937	0.312582177846			32.557921071463	0.0109500870817		
98	99.851378628762	7.04000000e-005			32.557921071463	0.01073108534		
99	100	7.04000000e-005			33.213346486554	0.0107850826734		
100					33.213346486554	0.0105834143857		
101					35.563891157793	0.0105847947778		
102					35.563891157793	0.0103812418321		
103					36.10320236125	0.0104427769295		
104					36.10320236125	0.0102467434025		

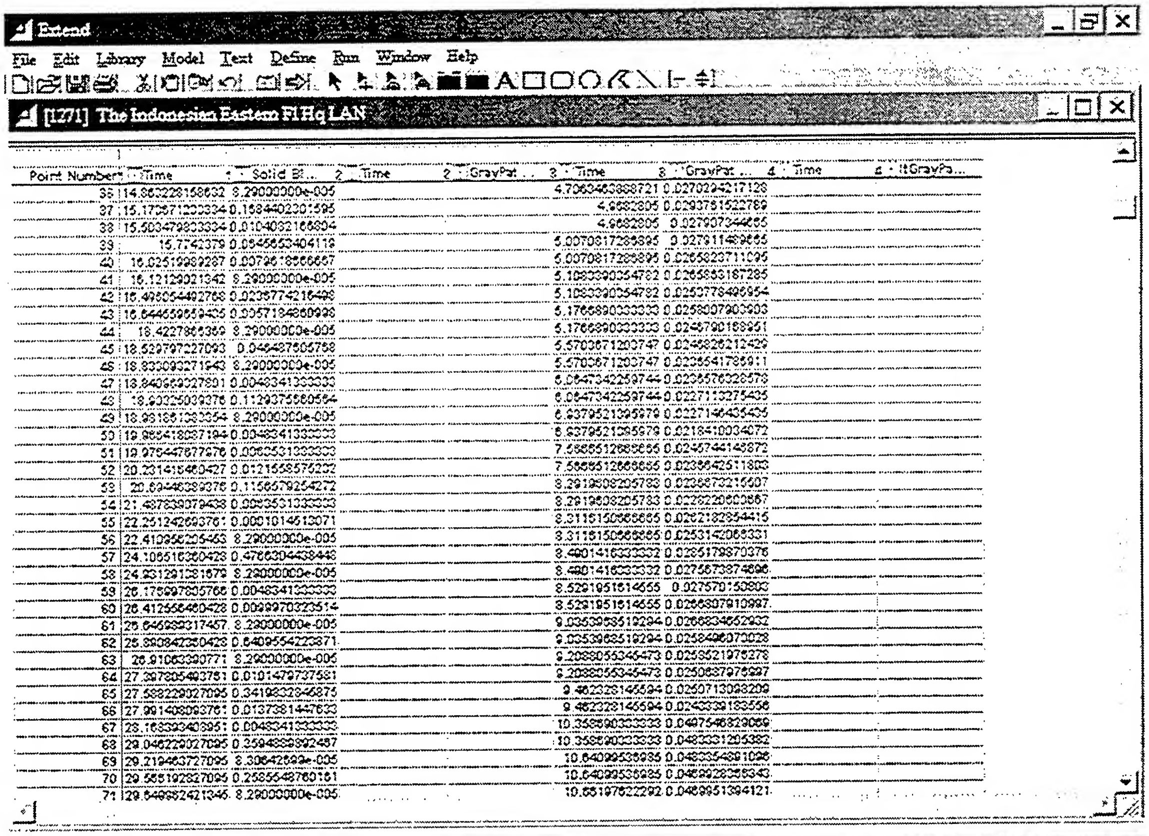


Run 1, The 2nd LAN, Using Simulation Set Up 100, Mean 1 sec, T1 Line 1.544 Mbps

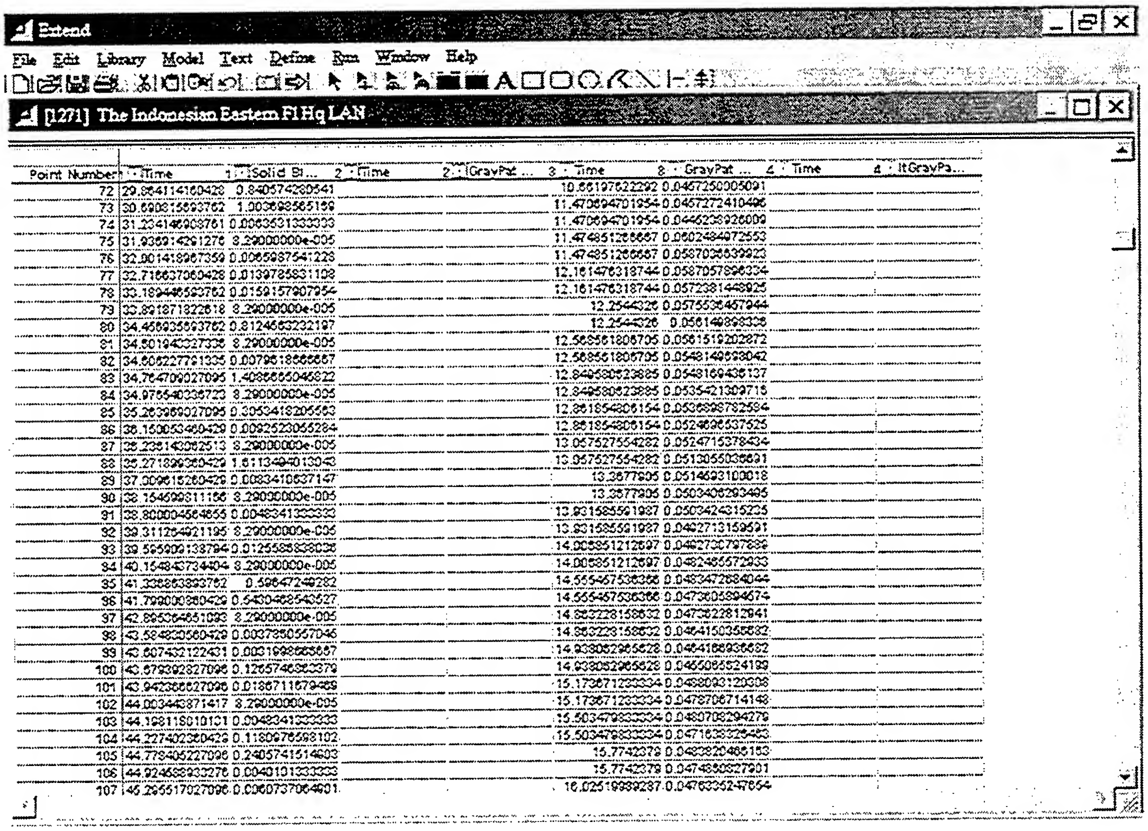


Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: GrayPa...
0	0.0109998666667	0.0109998666667			0.0109998666667	0.0109998666667		
1	0.0393316666667	0.0393316666667			0.0393316666667	0.0503316333333		
2	0.0604683333333	0.0604683333333			0.0393316666667	0.0251657666667		
3	0.0682695	0.0682695			0.0604683333333	0.0553946333333		
4	0.4607225380872	8.29000000e-005			0.0604683333333	0.0362299555656		
5	0.6955034	0.0223596686028			0.0682695	0.0506864555556		
6	0.7188900666667	0.0037197175835			0.0682695	0.0447649415667		
7	1.2399643107529	8.29000000e-005			0.4607225380872	0.0447855666667		
8	2.1075153232913	0.0410125333332			0.4607225380872	0.0358284633333		
9	2.1778923	0.0467242802607			0.6955034	0.0403003370539		
10	2.9942620333334	0.1210351004786			0.6955034	0.0335836558782		
11	3.2195477101118	8.29000000e-005			0.7188900666667	0.0342036038063		
12	3.2524077632431	0.0048341333333			0.7188900666667	0.029317378979		
13	3.5602101059758	8.29000000e-005			1.2399643107529	0.0293292218361		
14	3.6854413666667	0.0941510122841			1.2399643107529	0.0256630691066		
15	4.4069523787251	8.29000000e-005			1.9606068247253	0.0256734316066		
16	4.9682805	0.0445878807566			1.9606068247253	0.0228230280948		
17	5.0070817286295	8.29000000e-005			2.1075153232913	0.0273777762429		
18	5.1766890333333	0.0093046952873			2.1075153232913	0.0246399986188		
19	5.5703671203747	8.29000000e-005			2.1778923	0.0293124266447		
20	7.5666512666665	0.0710686932809			2.1778923	0.0265476605351		
21	8.2919608205783	8.29000000e-005			2.9942620333334	0.0376508515387		
22	8.3118150666665	0.0950943104933			2.9942620333334	0.0346132805771		
23	8.4901416333332	0.0929096317285			3.2195477101118	0.0346201889105		
24	8.5291951614655	8.29000000e-005			3.2195477101118	0.0318647897635		
25	10.358690333333	0.8643059947466			3.2524077632431	0.0322366461738		
26	10.640985359995	8.29000000e-005			3.2524077632431	0.0299340285899		
27	11.474351266667	0.5975349768652			3.5602101059758	0.0292399508185		
28	12.161476318744	8.29000000e-005			3.5602101059758	0.0279429533506		
29	12.2544326	0.0126200360756			3.6408339399889	0.0279494800172		
30	12.568561808705	8.29000000e-005			3.6408339399889	0.0282028375162		
31	12.861954806154	0.0063531333333			3.6854413666667	0.0320970757839		
32	13.057527554262	8.29000000e-005			3.6854413666667	0.0301996007378		
33	13.3677905	0.0063212849689			4.4069523787251	0.0302044772084		
34	13.931585591987	8.29000000e-005			4.4069523787251	0.0285264606958		
35	14.555467536356	0.0048341333333			4.7063463688721	0.0285310562524		

Run 1, Data Delay within the 2nd LAN



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat...	3 : Time	3 : GrayPat...	4 : Time	4 : ltGrayPa...
36	14.863228158632	8.29000000e-005			4.7063463888721	0.0270294217128		
37	15.1736712333334	0.1584402301595			4.9682805	0.0293781522789		
38	15.5034798333334	0.0104062166804			4.9682805	0.0279073446665		
39	15.7742379	0.0845653404119			5.0070817285895	0.0279114498655		
40	16.0251998287	0.0079618566667			5.0070817285895	0.0265823711095		
41	16.12129021342	8.29000000e-005			5.1083990354782	0.0265863187285		
42	16.496054402768	0.0235774216499			5.1083990354782	0.0253778496954		
43	16.644659659405	0.0057184860998			5.1766890333333	0.0258007903903		
44	18.4227865369	8.29000000e-005			5.1766890333333	0.0245790188951		
45	18.529797227093	0.046487505758			5.5703671200747	0.0246826212429		
46	18.833093271943	8.29000000e-005			5.5703671200747	0.0235541785911		
47	18.840693027801	0.0048341333333			6.0647342259744	0.0236576328578		
48	18.90325039376	0.1129375580564			6.0647342259744	0.0227113275435		
49	18.981861083354	8.29000000e-005			6.8379521395979	0.0227146435435		
50	19.965418037194	0.0048341333333			6.8379521395979	0.0218410034072		
51	19.975447677676	0.0060531333333			7.5686512888666	0.0245744145872		
52	20.231415460427	0.0121558576232			7.5686512888666	0.0238642511803		
53	20.69446389376	0.1156679254272			8.2919808205783	0.0236873216607		
54	21.487639079433	0.0083531333333			8.2919808205783	0.0228220600867		
55	22.251242693761	0.0001014613071			8.3115150666665	0.0262182854415		
56	22.410956205463	8.29000000e-005			8.3115150666665	0.0253142068331		
57	24.106516360423	0.4786304438448			8.4901416333332	0.0285179870376		
58	24.931291381679	8.29000000e-005			8.4901416333332	0.0275673874698		
59	26.175997805766	0.0048341333333			8.5291951614655	0.027570150803		
60	26.412566460428	0.0099970323514			8.5291951614655	0.0266307910997		
61	26.646938317457	8.29000000e-005			9.0353963519294	0.0266834652932		
62	26.890842350428	0.6409554223871			9.0353963519294	0.0258496073028		
63	26.91063390771	8.29000000e-005			9.2088055346473	0.0259521976278		
64	27.397805493751	0.0101479737581			9.2088055346473	0.0250837976297		
65	27.588229027095	0.3419832846875			9.4623281466594	0.0250713098209		
66	27.991408093761	0.0137381447633			9.4623281466594	0.0243339183556		
67	28.168393408951	0.0048341333333			10.358890333333	0.0497546829069		
68	29.046229027095	0.3594888892487			10.358890333333	0.0483331205382		
69	29.219463727095	8.30842592e-005			10.640995306935	0.0483354091096		
70	29.555192827095	0.2585548760161			10.640995306935	0.0469228358343		
71	29.649982421346	8.29000000e-005			10.661976222292	0.0469951394121		



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat...	3 : Time	3 : GrayPat...	4 : Time	4 : ltGrayPa...
72	29.864114160428	0.840574280541			10.661976222292	0.0457250005091		
73	30.690815693762	1.003698565159			11.470694701954	0.0457272410496		
74	31.234146908761	0.0063531333333			11.470694701954	0.0446238926009		
75	31.936914291276	8.29000000e-005			11.474851266667	0.0602484072553		
76	32.001418967359	0.0065987541228			11.474851266667	0.0587036639923		
77	32.716637060428	0.0139785831108			12.161476318744	0.0587057896334		
78	33.189446593762	0.0159157907954			12.161476318744	0.0572381448925		
79	33.891871322618	8.29000000e-005			12.2544326	0.0575536467944		
80	34.466935593762	0.8124663232197			12.2544326	0.056149898336		
81	34.501940327336	8.29000000e-005			12.568561806705	0.0561519202872		
82	34.606227791335	0.0079618566667			12.568561806705	0.0548149693042		
83	34.764709027095	1.4086665046822			12.849580523885	0.0548169436137		
84	34.976540236723	8.29000000e-005			12.849580523885	0.0535421309715		
85	35.263969027095	0.3053418205563			12.861854806154	0.0536898782594		
86	36.150053460429	0.0092523065284			12.861854806154	0.0524896537525		
87	36.235143062513	8.29000000e-005			13.057527554282	0.0524715378434		
88	36.271899360429	1.6113494013043			13.057527554282	0.0513055036691		
89	37.009615260429	0.0083410637147			13.3677905	0.0514693100018		
90	38.154699311156	8.29000000e-005			13.3677905	0.0503408293495		
91	38.800004564855	0.0048341333333			13.931585591987	0.0503424315235		
92	39.311264921195	8.29000000e-005			13.931585591987	0.0492713159591		
93	39.595909133784	0.0125585838038			14.005851212697	0.0492730797889		
94	40.154843734404	8.29000000e-005			14.005851212697	0.0482465572933		
95	41.338863393762	0.59647249282			14.555457536366	0.0483472684044		
96	41.799000360429	0.5430468540527			14.555457536366	0.0473605394674		
97	42.895064651093	8.29000000e-005			14.863228158632	0.0473622812941		
98	43.584830560429	0.0037850557046			14.863228158632	0.0464150358682		
99	43.607432122431	0.0031998665667			14.938052965628	0.0464188936682		
100	43.679392827096	0.1265746360379			14.938052965628	0.0455085524189		
101	43.942366627096	0.0186711679489			15.173671233334	0.0488093120308		
102	44.003443871417	8.29000000e-005			15.173671233334	0.0478706714148		
103	44.198118010101	0.0048341333333			15.503479833334	0.0480709294279		
104	44.227402360429	0.1180976598102			15.503479833334	0.0471639325463		
105	44.778405227096	0.2405741514603			15.7742379	0.0483820466153		
106	44.924693933276	0.0040101333333			15.7742379	0.0474850327901		
107	46.295517027096	0.0060737064901			16.02519939237	0.0476335247654		

Extend

File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

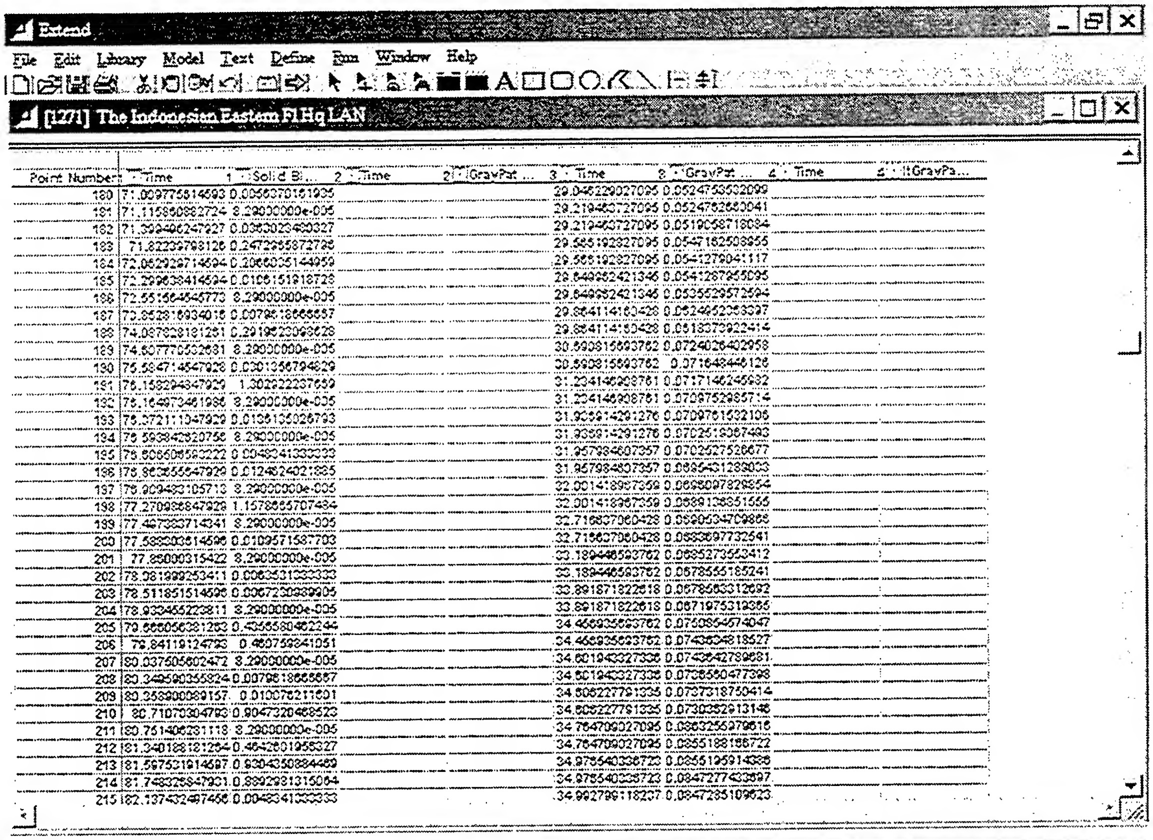
Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ItGrayPa...
108	45.333315121759	0.0079678666667			16.02519989287	0.0467674606787		
109	46.368594560429	0.1432222027326			16.12129021342	0.0467689679515		
110	47.04189253272	8.29000000e-005			16.12129021342	0.0469338078095		
111	47.606020460429	0.0105024486672			16.496054492768	0.0463566189104		
112	47.810462218016	8.29000000e-005			16.496054492768	0.0465433449844		
113	48.049616927098	0.0088331082909			16.644559659435	0.0456436592119		
114	48.212532276494	8.29000000e-005			16.644559659435	0.0448557092979		
115	48.382282127098	0.0310861414601			18.4227865369	0.0448591387093		
116	49.189906914281	0.0145929670178			18.4227865369	0.0440978312726		
117	49.374462969055	8.29000000e-005			18.529797227093	0.0448857756794		
118	49.741973314281	0.0098146773412			18.529797227093	0.0441376609475		
119	49.808156955801	8.29000000e-005			18.833093271943	0.0441390425141		
120	50.065295920948	0.1234502906729			18.833093271943	0.0434154616523		
121	51.108469536177	8.29000000e-005			18.840969327801	0.0434946997407		
122	51.281621580949	0.1998247686792			18.840969327801	0.0427931723255		
123	51.503771714281	0.1080179035489			18.93325039376	0.0446147469716		
124	51.583401580948	0.2025772669415			18.93325039376	0.0439066764006		
125	51.662183114281	0.0882417798109			18.981861083354	0.0439078912728		
126	51.744171504801	8.29000000e-005			18.981861383354	0.0432218304725		
127	51.790680714281	0.0161135381951			19.57732836342	0.040223125785		
128	51.895580247615	0.5069119022581			19.57732836342	0.042558154619		
129	52.269341580948	0.2273465888282			19.643259093352	0.0425594300037		
130	52.280333114281	0.223999305546			19.643259093352	0.0419146901551		
131	52.585505146639	8.29000000e-005			19.965418087194	0.0419878346998		
132	52.963126047615	0.0065269269285			19.965418087194	0.0413611505011		
133	53.141016380948	0.3403746278435			19.978447677976	0.0414659733366		
134	53.424091814281	9.48269505e-005			19.978447677976	0.0408483267192		
135	53.792846349426	0.0047444			20.231416460427	0.0410250893298		
136	53.92563570892	8.29000000e-005			20.231416460427	0.0404305228178		
137	54.680623114281	0.1199410591653			20.69446389376	0.0421087246356		
138	54.867327364018	8.29000000e-005			20.69446389376	0.0415051999979		
139	55.545082095653	0.0079518666667			21.487839079438	0.0415959590469		
140	55.575574669729	8.29000000e-005			21.487839079438	0.0410101004674		
141	55.832188247615	0.1873317064438			22.251242693761	0.0410115293591		
142	55.958920303712	8.29000000e-005			22.251242693761	0.0404419247847		
143	57.387816447615	0.2922920224340			22.410956205463	0.0404430761736		

Extend

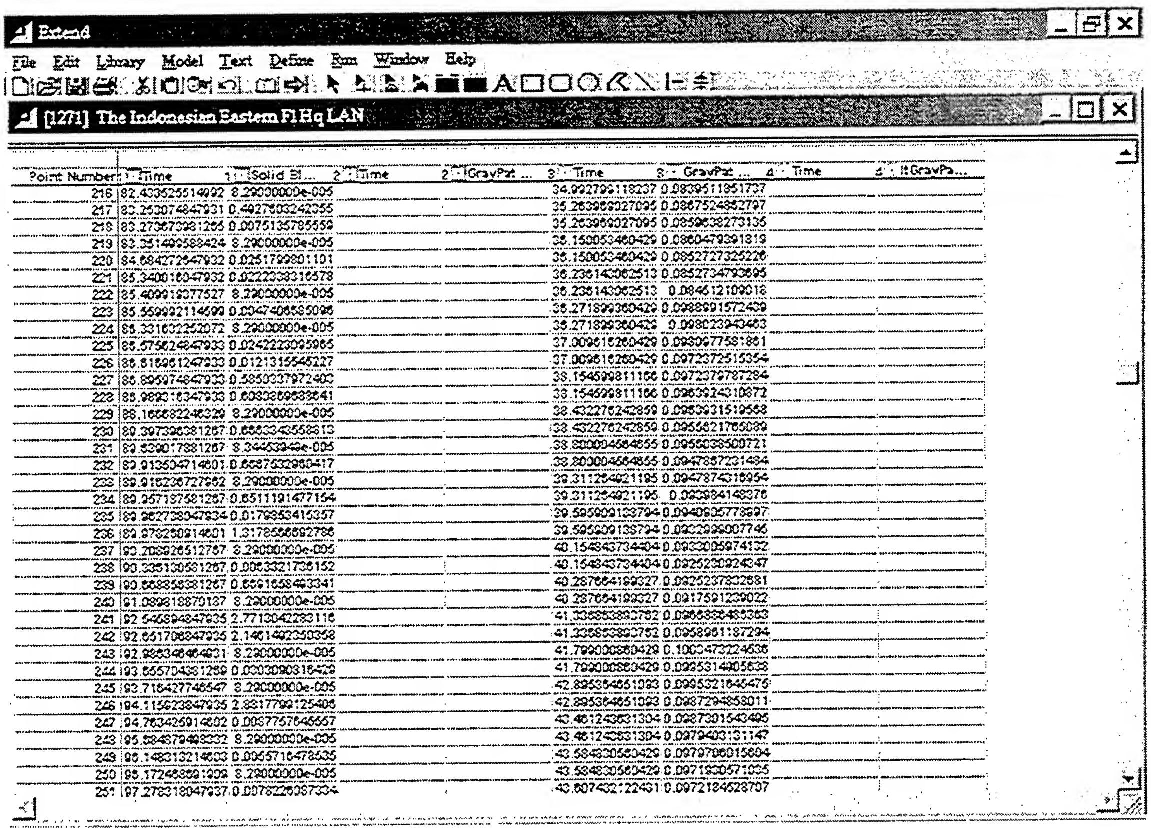
File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

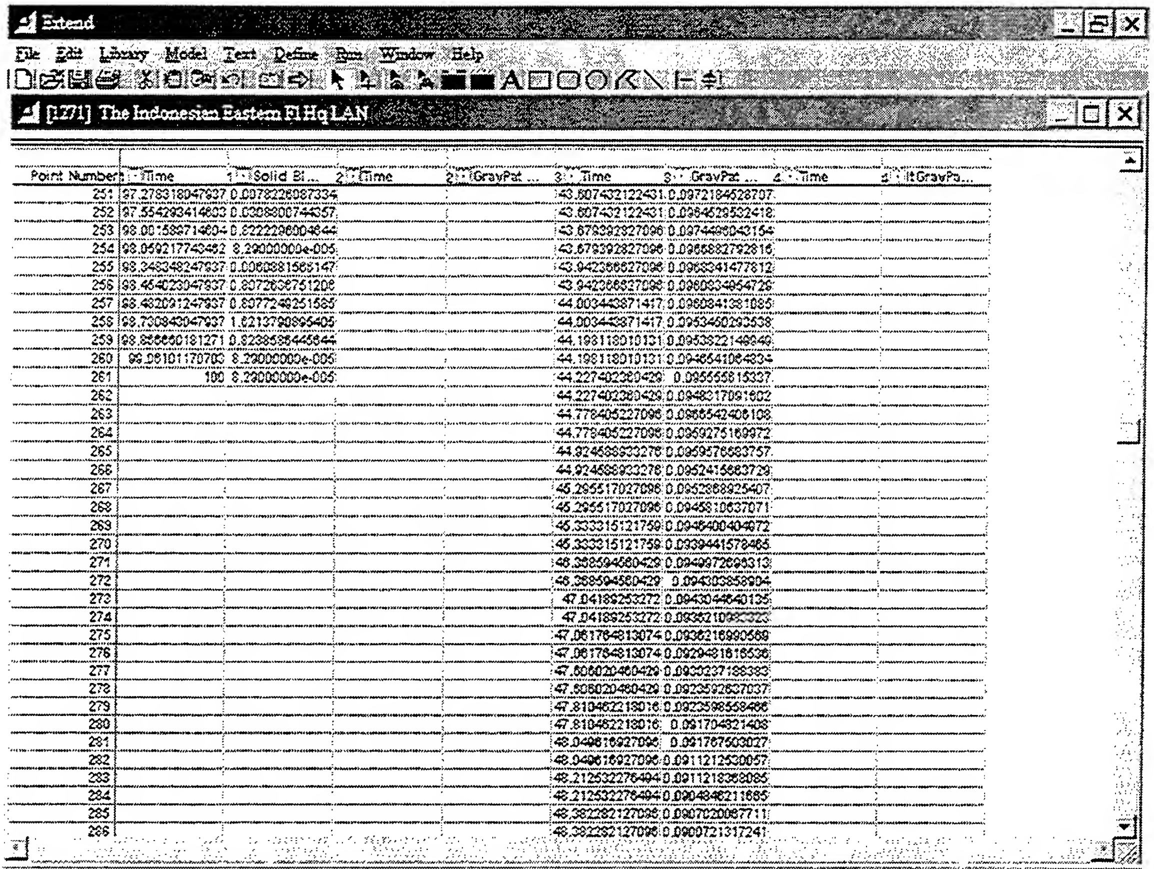
Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ItGrayPa...
144	57.516949780948	0.2923665681135			22.410956205463	0.0398890614314		
145	57.974024248353	0.007378757236			22.419894431611	0.0398901970479		
146	59.264664791378	8.29000000e-005			22.419894431611	0.039351140331		
147	60.301923114283	0.445675934749			22.847065133718	0.0390522606013		
148	60.407580536119	8.29000000e-005			22.847065133718	0.0368275637933		
149	60.418443114282	0.4414747873671			23.984834917998	0.0388286591266		
150	60.661592714282	0.0122014320929			23.984834917998	0.0383177655855		
151	61.247339514282	0.5164730548004			24.108516360428	0.044689218794		
152	61.757531047615	0.0119846289949			24.108516360428	0.0440101380304		
153	61.95607495923	8.29000000e-005			24.931291381879	0.0440112145538		
154	62.452791404832	0.007408260408			24.931291381879	0.0434469683121		
155	62.500861535741	8.29000000e-005			25.733635531166	0.0434480311326		
156	63.054828647615	1.0826602640211			25.733635531166	0.0428980560549		
157	63.195520114282	0.0209395403453			25.770712507546	0.042899105422		
158	63.515260114282	0.0103727391308			25.770712507546	0.0423622686043		
159	63.591077013938	0.0079618666667			26.176997205766	0.0424232932709		
160	64.173726263503	8.29000000e-005			26.176997805766	0.0418995489096		
161	64.331118447615	0.0056222093381			26.412556460428	0.042022989062		
162	64.956894398395	8.29000000e-005			26.412556460428	0.0415104938298		
163	65.594628280949	0.6347787874026			26.545989317467	0.0415115048052		
164	65.709228214282	0.2755073598766			26.545989317467	0.0410113661921		
165	65.825778153318	8.29000000e-005			26.890842380428	0.0487337206797		
166	66.211074714283	0.0111359335795			26.890842380428	0.0481535573382		
167	66.407338787534	8.29000000e-005			26.91063390771	0.0431545442243		
168	66.500984414283	0.0101211815822			26.91063390771	0.0475880201931		
169	66.522849726597	0.0048341333333			27.271525991932	0.0475889954872		
170	66.514714946418	8.29000000e-005			27.271525991932	0.0470356350746		
171	66.930697047616	0.0135678252417			27.397805493761	0.0471536347694		
172	67.36123885895	8.29000000e-005			27.397805493781	0.0465116339675		
173	67.835873814692	0.0755263439461			27.588229027095	0.0505424813191		
174	68.831288846356	8.29000000e-005			27.588229027095	0.0499631349404		
175	69.187857847926	0.1138001663182			27.991408093761	0.0501242502218		
176	69.384570963057	0.0100578460468			27.991408093761	0.0495610563991		
177	69.659317247926	0.1072668174884			28.168393408951	0.049615372504		
178	70.476936314693	0.0202188359547			28.168393408951	0.0490640905873		
179	70.718261110058	8.29000000e-005			29.046229027095	0.05305841259		



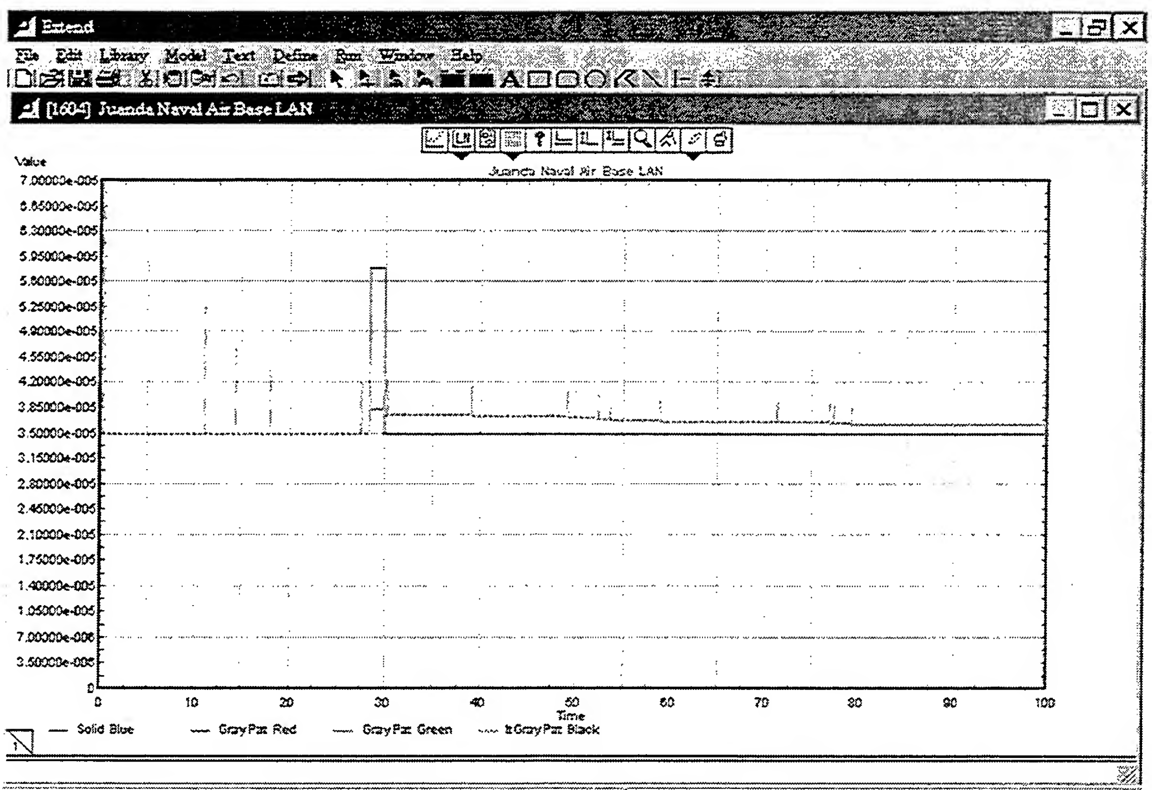
Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : GravPa...
180	71.009775814693	0.0056370181935			29.046229027095	0.0524758532099		
181	71.115860882724	8.29000000e-005			29.219463727095	0.0524752680041		
182	71.399496247927	0.0363023480327			29.219463727095	0.0519058718084		
183	71.82239793126	0.2472955872728			29.565192827095	0.0547182508955		
184	72.062928714694	0.2066035144959			29.565192827095	0.0541279041117		
185	72.299638414694	0.0106151918723			29.649952421346	0.0541287265095		
186	72.551564546773	8.29000000e-005			29.649952421346	0.0535529572594		
187	73.852918934016	0.0079818666657			29.864114160428	0.0524952068397		
188	74.087828181261	0.2919523098628			29.864114160428	0.0518370922414		
189	74.607770532631	8.29000000e-005			30.590915693762	0.0724026402958		
190	75.584714547928	0.0301356794829			30.590915693762	0.071648446128		
191	76.159294347929	1.302922237659			31.234146908761	0.0717146246932		
192	76.164973461986	8.29000000e-005			31.234146908761	0.0709752985714		
193	76.372111047929	0.0136135026793			31.935914291276	0.0709761532106		
194	76.593842320758	8.29000000e-005			31.935914291276	0.0702519087493		
195	76.606508593222	0.0048341333333			31.957934607357	0.0702527526677		
196	76.963555647929	0.0124524021885			31.957934607357	0.0695431238003		
197	76.909493105713	8.29000000e-005			32.001418967359	0.0695097829854		
198	77.270938847929	1.1578655707484			32.001418967359	0.0689138851565		
199	77.497383714341	8.29000000e-005			32.716837060428	0.0590534709865		
200	77.533003514696	0.0109571587703			32.716837060428	0.0583697732541		
201	77.88000315422	8.29000000e-005			33.189446593762	0.0685273553412		
202	78.081999253411	0.0063531333333			33.189446593762	0.0678555185241		
203	78.511851514696	0.0067230389905			33.891871822618	0.0678563312692		
204	78.933465223811	8.29000000e-005			33.891871822618	0.0671975319365		
205	79.666056381263	0.4355580482244			34.466935693762	0.0750854574047		
206	79.84119124793	0.460759241051			34.466935693762	0.0743604818527		
207	80.037505602472	8.29000000e-005			34.601943327336	0.0743642789681		
208	80.349590355824	0.0079818666667			34.601943327336	0.0736550477398		
209	80.358900089157	0.010076211601			34.606227791335	0.0737318750414		
210	80.710703304793	0.9047320468523			34.606227791335	0.0730352913148		
211	80.751406231118	8.29000000e-005			34.764709027095	0.0863256279616		
212	81.340188121264	0.4642601955327			34.764709027095	0.0855188188722		
213	81.597521914687	0.9304350884469			34.975540336723	0.0855195914336		
214	81.748325847931	0.8892981315064			34.975540336723	0.0847277433897		
215	82.137432497466	0.0048341333333			34.992799118237	0.0847285109623		



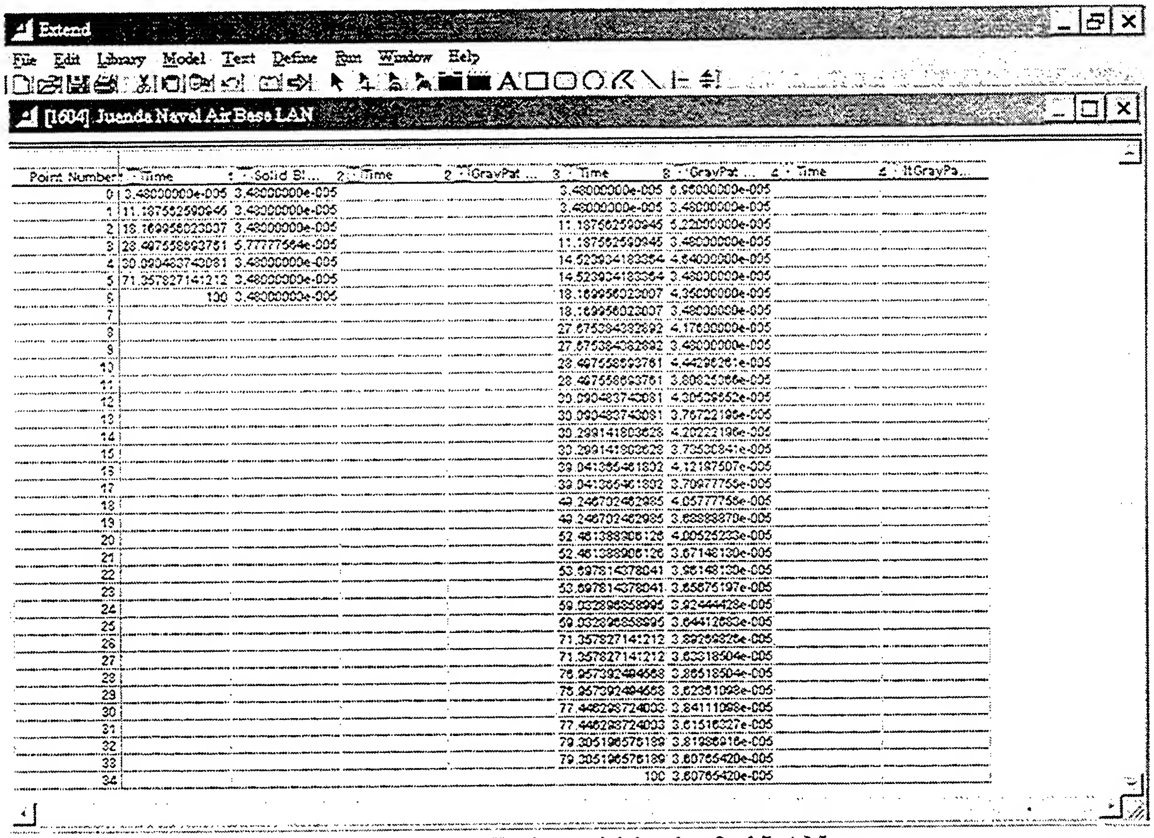
Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : GravPa...
216	82.433525514992	8.29000000e-005			34.992799118237	0.0839511851737		
217	83.253074847931	0.4927603242355			35.263969027095	0.0867524862797		
218	83.273673981266	0.0075135785559			35.263969027095	0.0859638273136		
219	83.351499588424	8.29000000e-005			36.150053460429	0.0860479391819		
220	84.684272547932	0.0251799801101			36.150053460429	0.0852727325226		
221	85.340018047932	0.0222038316578			36.235143062513	0.0852734793695		
222	85.409919377527	8.29000000e-005			36.235143062513	0.084612109018		
223	85.559992114699	0.0047406585095			36.271899360429	0.0988991572409		
224	86.331602262072	8.29000000e-005			36.271899360429	0.098023940463		
225	86.575624847933	0.0242223095965			37.009616260429	0.0980977581861		
226	86.618961247933	0.0121315546227			37.009616260429	0.0972372515354		
227	86.895974847933	0.5850337972400			38.154699811166	0.0972379787284		
228	86.989316347933	0.6093869683641			38.154699811166	0.0963924310872		
229	88.166682246329	8.29000000e-005			38.432276242859	0.0963931519568		
230	89.397396381267	0.6663343558813			38.432276242859	0.0955821765089		
231	89.539017381267	8.34463949e-005			38.800004664855	0.0955038500721		
232	89.913504714601	0.6687532960417			38.800004664855	0.0947857231484		
233	89.916236727962	8.29000000e-005			39.311254921195	0.0947874318954		
234	89.957187581267	0.6511191477154			39.311254921195	0.093984148376		
235	89.962738047934	0.0179353415357			39.595909138794	0.0940805778897		
236	89.978250914601	1.3178566692786			39.595909138794	0.0932998007746		
237	90.208926512767	8.29000000e-005			40.154843734404	0.0933005974132		
238	90.335130581267	0.0063321736152			40.154843734404	0.0925230924347		
239	90.868358381267	0.6591658493341			40.287664199327	0.0925237832681		
240	91.089813870187	8.29000000e-005			40.287664199327	0.0917591239022		
241	92.546894847935	2.7713042283116			41.336863893752	0.0966898485363		
242	92.651706847935	2.1461492350358			41.336863893752	0.0958961187294		
243	92.986346464631	8.29000000e-005			41.799000860429	0.1000473224636		
244	93.655704381269	0.0003090316429			41.799000860429	0.0995314905636		
245	93.716427746547	8.29000000e-005			42.895364651093	0.0995321646476		
246	94.115623847935	2.8817799125406			42.895364651093	0.0987294858011		
247	94.763425914602	0.0087757646667			43.461243631304	0.0987301543496		
248	95.584379493332	8.29000000e-005			43.461243631304	0.0979403131147		
249	96.148313214603	0.0065716478635			43.584830560429	0.0979706015604		
250	96.172468591909	8.29000000e-005			43.584830560429	0.0971920571035		
251	97.278318047937	0.0078226087334			43.607432122431	0.0972184628707		



Point Number	1 Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ItGrayPa...
251	97.278318047937	0.0078226087334			43.607432122431	0.0972184628707		
252	97.554293414603	0.0208800744357			43.607432122431	0.0964528532418		
253	98.001589714604	0.0222296004644			43.679392827096	0.0974498042154		
254	98.059217740452	8.29000000e-005			43.679392827096	0.0966882792816		
255	98.348348247937	0.0060881566147			43.942366627096	0.0968341477812		
256	98.464023047937	0.0072606751208			43.942366627096	0.0960834964726		
257	98.482091247937	0.0077248251585			44.003443871417	0.0960841381085		
258	98.730840047937	1.0213790895405			44.003443871417	0.0953450293538		
259	98.856660181271	0.0238598445644			44.198118010131	0.0953922148849		
260	99.08101170700	8.29000000e-005			44.198118010131	0.0946541064834		
261	100	8.29000000e-005			44.227402380429	0.095655815337		
262					44.227402380429	0.0948317091602		
263					44.778405227096	0.0966542406108		
264					44.778405227096	0.0969275169972		
265					44.924686933276	0.0969576583757		
266					44.924686933276	0.0952415683729		
267					45.295517027096	0.0952868925407		
268					45.295517027096	0.0945810637071		
269					45.333315121759	0.0946400404672		
270					45.333315121759	0.0939441578465		
271					46.386594580429	0.0949972698313		
272					46.386594580429	0.094303858904		
273					47.04189253272	0.0943044640135		
274					47.04189253272	0.0936210993323		
275					47.061764813074	0.0936216990569		
276					47.061764813074	0.0929481816536		
277					47.606020460429	0.0930237188383		
278					47.606020460429	0.0923592637037		
279					47.810462213016	0.0923598558466		
280					47.810462213016	0.091704321403		
281					48.049616927096	0.091767503027		
282					48.049616927096	0.0911212530057		
283					48.212532276494	0.0911218358085		
284					48.212532276494	0.0904848211665		
285					48.382282127096	0.0907020087711		
286					48.382282127096	0.0900721317241		

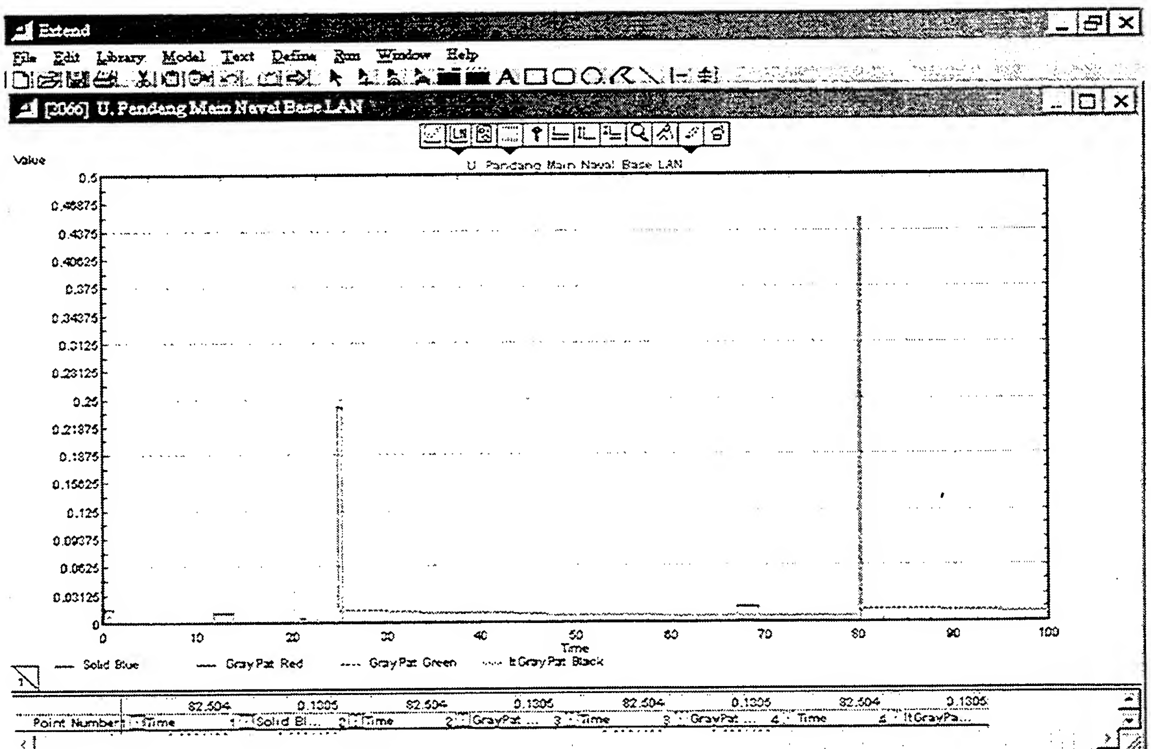


Run 1, The 3rd LAN

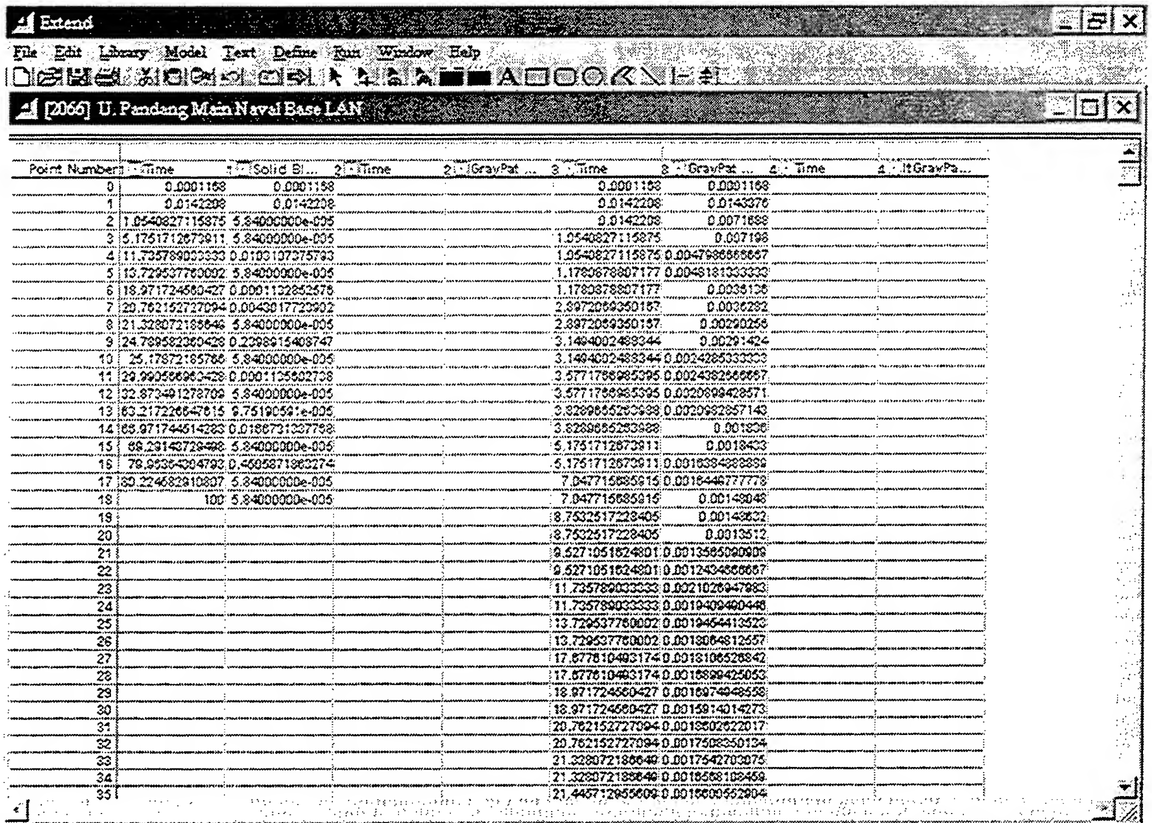


Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
0	3.48000000e-005	3.48000000e-005			3.48000000e-005	6.95000000e-005		
1	11.187562590946	3.48000000e-005			3.48000000e-005	3.48000000e-005		
2	18.169956023007	3.48000000e-005			11.187562590945	5.22000000e-005		
3	28.497558893761	5.77777564e-005			11.187562590945	3.48000000e-005		
4	30.090483743081	3.48000000e-005			14.523934183354	4.84000000e-005		
5	71.357827141212	3.48000000e-005			14.523934183364	3.48000000e-005		
6	100	3.48000000e-005			18.169956023007	4.35000000e-005		
7					18.169956023007	3.48000000e-005		
8					27.675384382692	4.17600000e-005		
9					27.675384082692	3.48000000e-005		
10					28.497558893761	4.44298261e-005		
11					28.497558893761	3.80825366e-005		
12					30.090483743081	4.30539552e-005		
13					30.090483743081	3.76722196e-005		
14					30.299141803628	4.20222196e-005		
15					30.299141903628	3.73500841e-005		
16					39.041365461802	4.12187507e-005		
17					39.041365461802	3.70977755e-005		
18					49.246702462985	4.05777755e-005		
19					49.246702462985	3.68888870e-005		
20					52.481388906126	4.00525233e-005		
21					52.481388906126	3.67148130e-005		
22					53.697814378041	3.96148130e-005		
23					53.697814378041	3.65875197e-005		
24					59.032898658995	3.92444428e-005		
25					59.032898658995	3.64412683e-005		
26					71.357827141212	3.89259325e-005		
27					71.357827141212	3.63318504e-005		
28					78.957392494668	3.86518504e-005		
29					78.957392494668	3.62351092e-005		
30					77.446293724003	3.84111098e-005		
31					77.446293724003	3.61516327e-005		
32					79.305196576189	3.81936916e-005		
33					79.305196576189	3.60765420e-005		
34					100	3.60765420e-005		

Run 1, Data Delay within the 3rd LAN

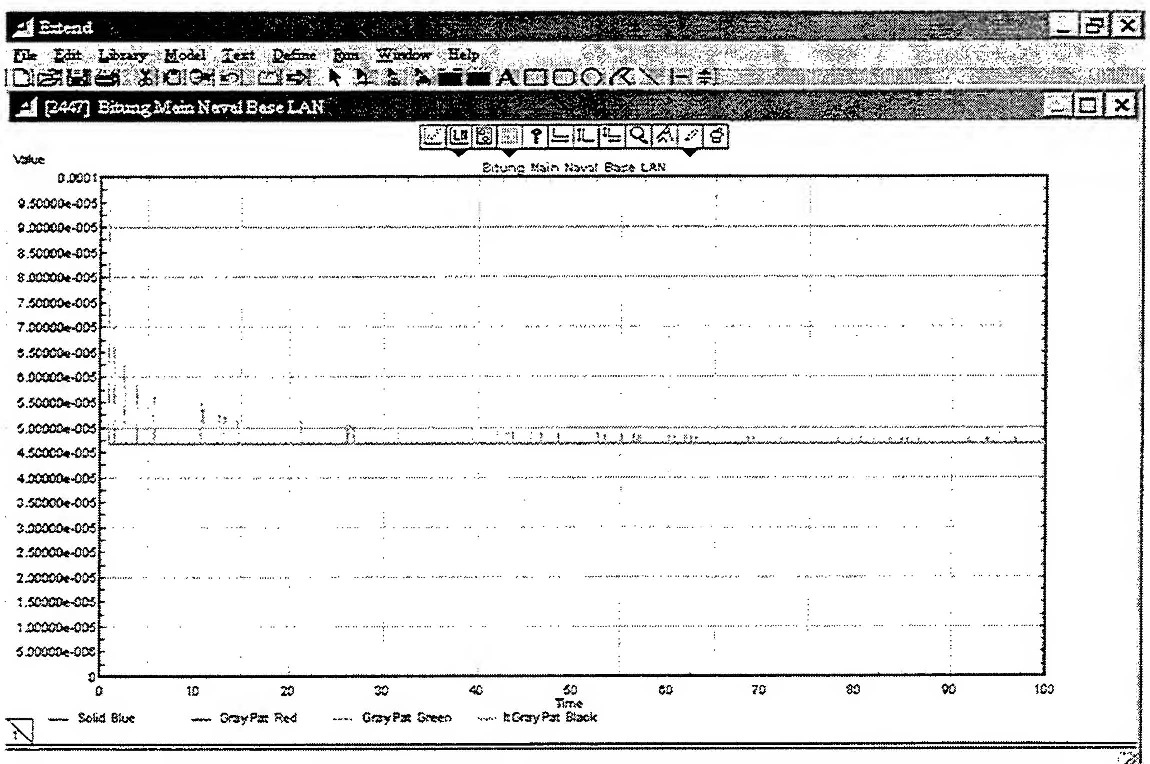


Run 1, The 4th LAN

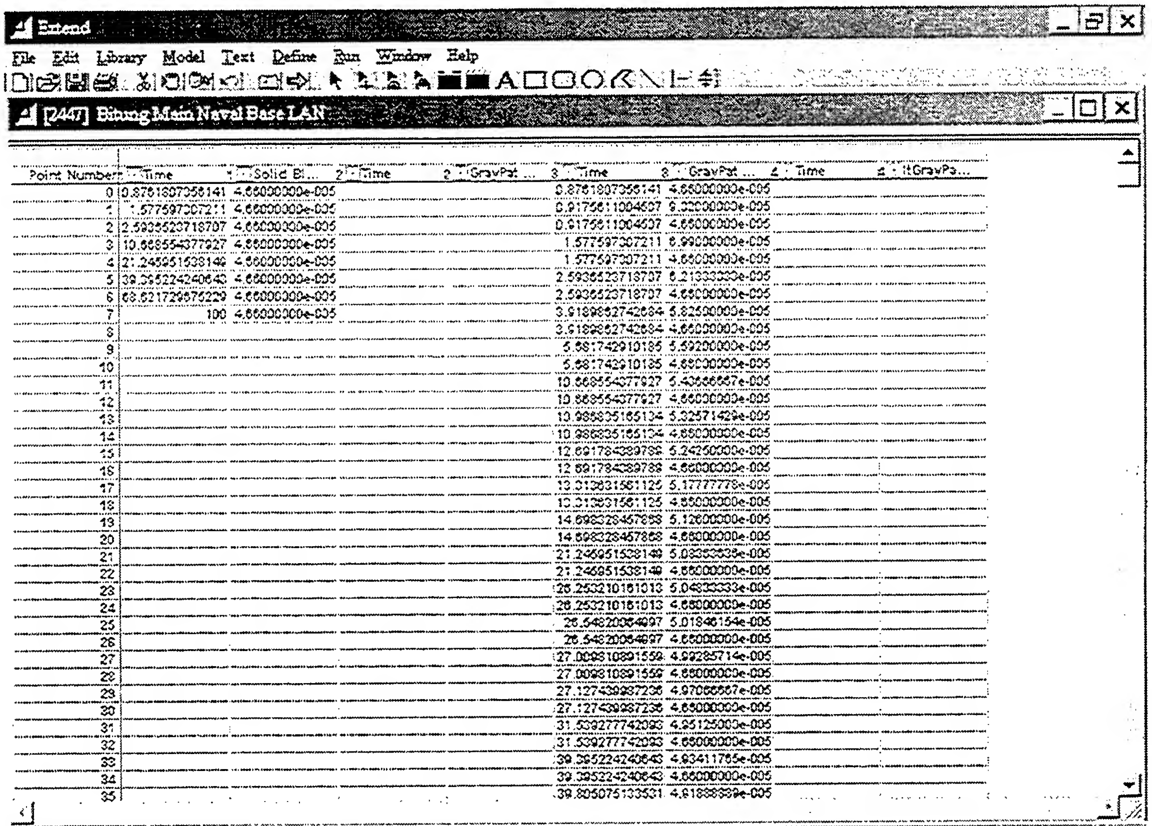


Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
0	0.0001168	0.0001168			0.0001168	0.0001168		
1	0.0142208	0.0142208			0.0142208	0.0143376		
2	1.0540827115875	5.84000000e-005			0.0142208	0.0071688		
3	5.1751712673911	5.84000000e-005			1.0540827115875	0.007196		
4	11.735789033333	0.0103107375793			1.0540827115875	0.0047986666667		
5	13.729537760002	5.84000000e-005			1.1780678807177	0.0048181333333		
6	18.971724560427	0.0001132852576			1.1780378807177	0.0038136		
7	20.762152727094	0.0043017723902			2.8972069350157	0.0036292		
8	21.328072188648	5.84000000e-005			2.8972069350157	0.00290256		
9	24.789582360428	0.2298915408747			3.1494002488344	0.00291424		
10	25.17872185766	5.84000000e-005			3.1494002488344	0.0024285333333		
11	29.990586963428	0.0001135602738			3.5771756985395	0.0024382666667		
12	32.873491278709	5.84000000e-005			3.5771756985395	0.0020899428571		
13	63.217226647615	9.75190591e-005			3.8289865283988	0.0020982857143		
14	65.971744614283	0.0186731037758			3.8289865283988	0.001836		
15	69.29140728498	5.84000000e-005			5.1751712673911	0.0018403		
16	79.95364204793	0.4685871863274			5.1751712673911	0.0016384888889		
17	80.224682910807	5.84000000e-005			7.047715685815	0.0016446777778		
18	100	5.84000000e-005			7.047715685815	0.00149048		
19					8.7532517228405	0.00149632		
20					8.7532517228405	0.0013512		
21					9.5271051624801	0.0013585090909		
22					9.5271051624801	0.0012434666667		
23					11.735789033333	0.0021026947983		
24					11.735789033333	0.0019409490446		
25					13.729537760002	0.0019464413523		
26					13.729537760002	0.0018064812657		
27					17.677810493174	0.0018106528842		
28					17.677810493174	0.0016899425053		
29					18.971724560427	0.0016974948558		
30					18.971724560427	0.0015914014273		
31					20.762152727094	0.0018502622017		
32					20.762152727094	0.0017508350134		
33					21.328072188649	0.0017542703075		
34					21.328072188649	0.0018568108469		
35					21.445712955609	0.0016600552904		

Run 1, Data Delay within the 4th LAN



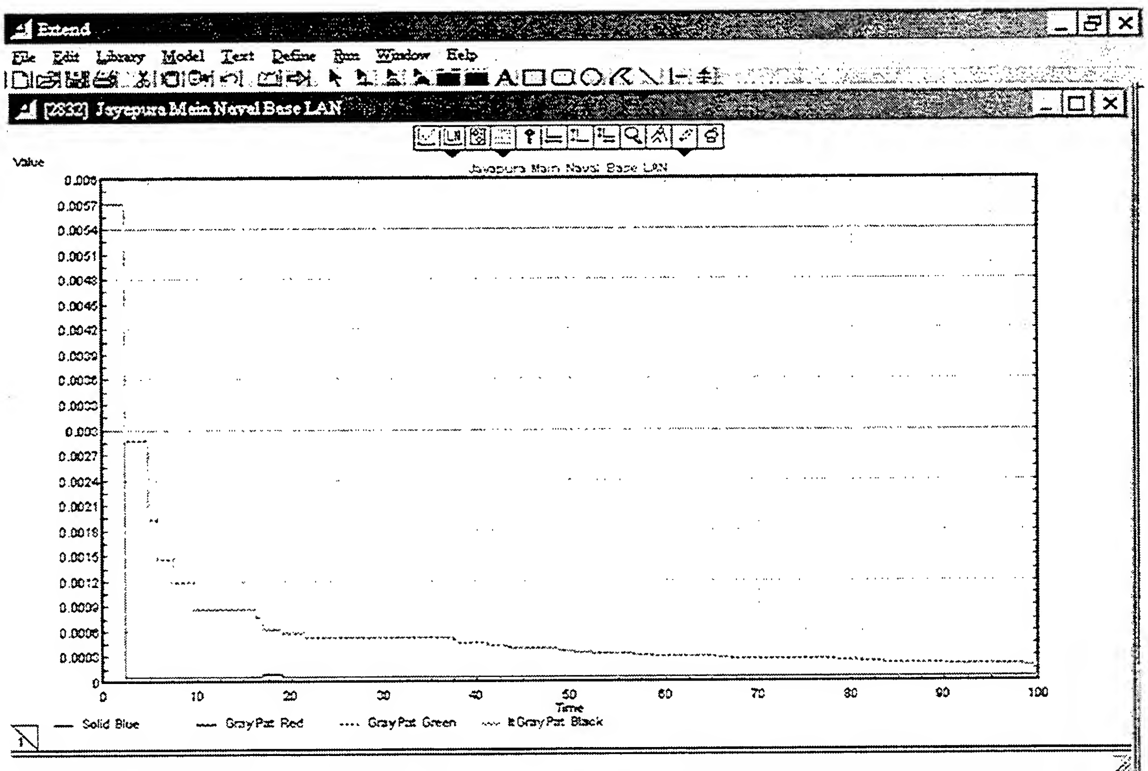
Run 1, The 5th LAN



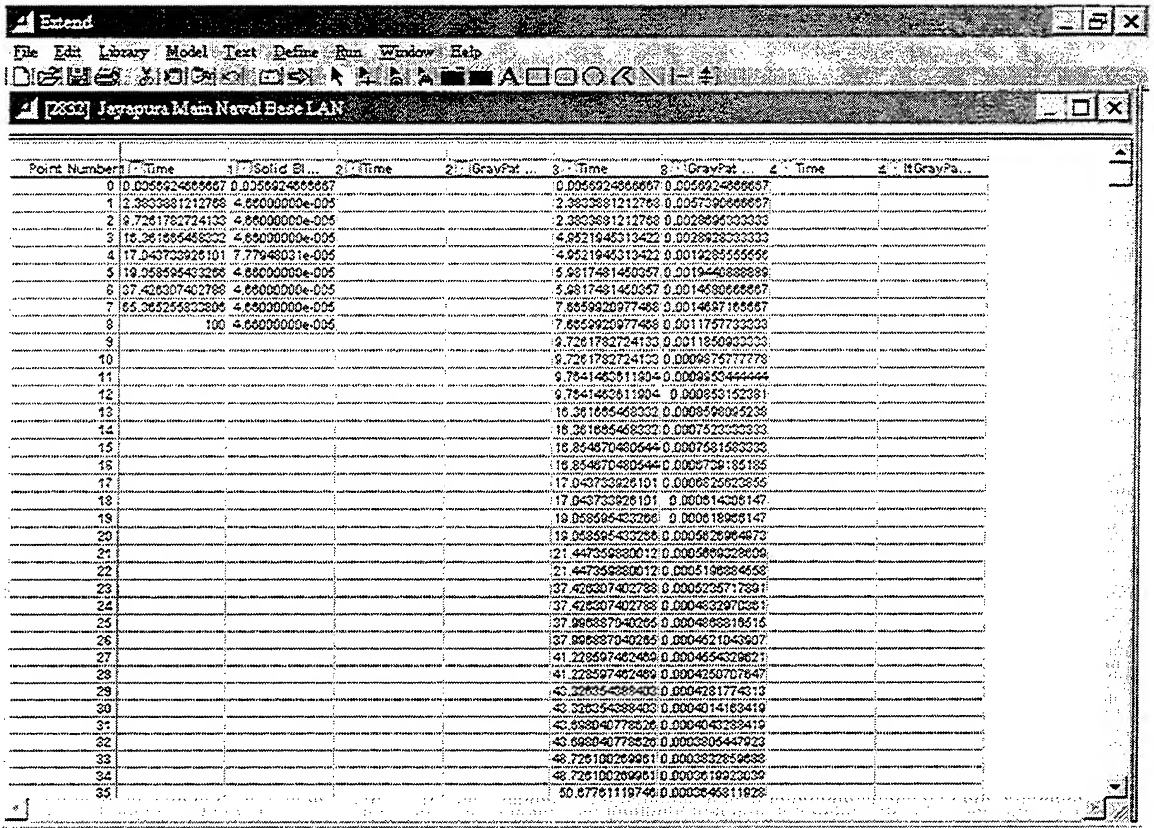
[2447] Bitung Main Naval Base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
0	0.8761807356141	4.66000000e-005			0.8761807356141	4.66000000e-005		
1	1.577597307211	4.66000000e-005			0.9175611004607	9.32000000e-005		
2	2.5936523718707	4.66000000e-005			0.9175611004607	4.66000000e-005		
3	10.868554377927	4.66000000e-005			1.577597307211	6.99000000e-005		
4	21.246951538149	4.66000000e-005			1.577597307211	4.66000000e-005		
5	39.395224240643	4.66000000e-005			2.5936523718707	6.21333333e-005		
6	68.621729875229	4.66000000e-005			2.5936523718707	4.66000000e-005		
7	100	4.66000000e-005			3.9189862742684	5.82500000e-005		
8					3.9189862742684	4.66000000e-005		
9					5.5817429101185	5.59200000e-005		
10					5.5817429101185	4.66000000e-005		
11					10.868554377927	5.43666667e-005		
12					10.868554377927	4.66000000e-005		
13					10.986835165134	5.32571429e-005		
14					10.986835165134	4.66000000e-005		
15					12.691784289788	5.24250000e-005		
16					12.691784289788	4.66000000e-005		
17					13.313831561125	5.17777778e-005		
18					13.313831561125	4.66000000e-005		
19					14.698328457868	5.12600000e-005		
20					14.698328457868	4.66000000e-005		
21					21.246951538149	5.08363636e-005		
22					21.246951538149	4.66000000e-005		
23					26.253210161013	5.04833333e-005		
24					26.253210161013	4.66000000e-005		
25					26.548200854897	5.01846154e-005		
26					26.548200854897	4.66000000e-005		
27					27.009310891559	4.99285714e-005		
28					27.009310891559	4.66000000e-005		
29					27.127439987236	4.97066667e-005		
30					27.127439987236	4.66000000e-005		
31					31.539277742093	4.95125000e-005		
32					31.539277742093	4.66000000e-005		
33					39.395224240643	4.93411765e-005		
34					39.395224240643	4.66000000e-005		
35					39.805075133531	4.91888889e-005		

Run 1, Data Delay within the 5th LAN

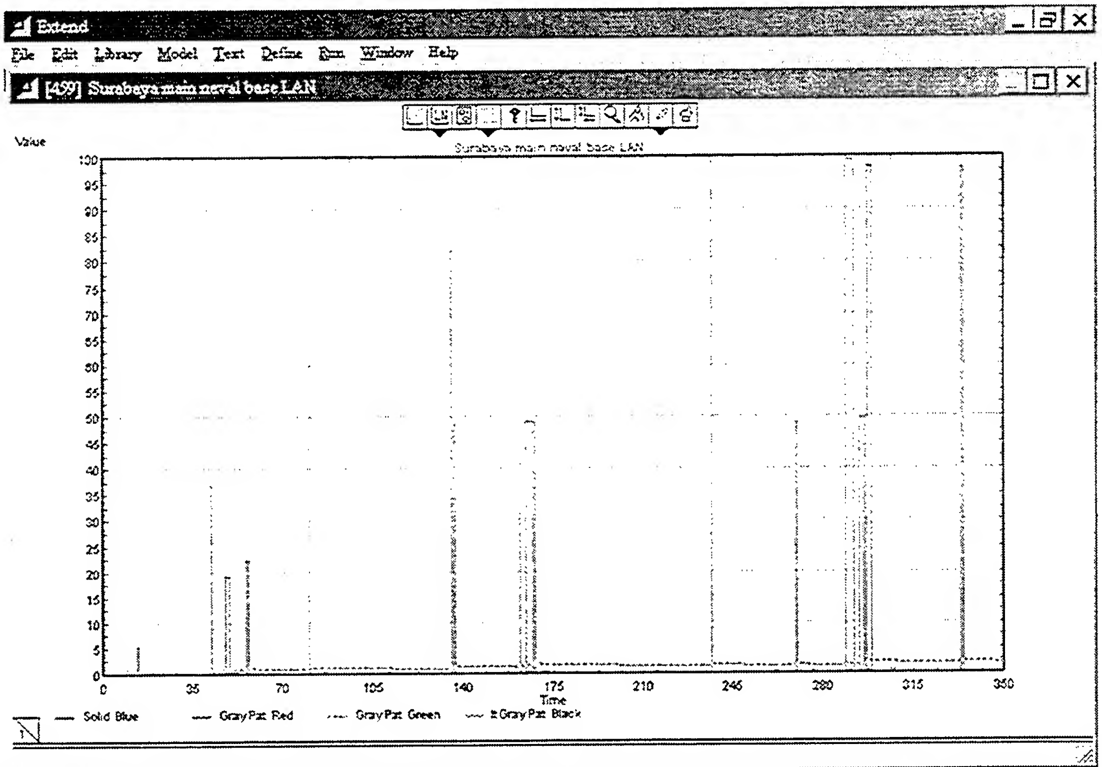


Run 1, The 6th LAN

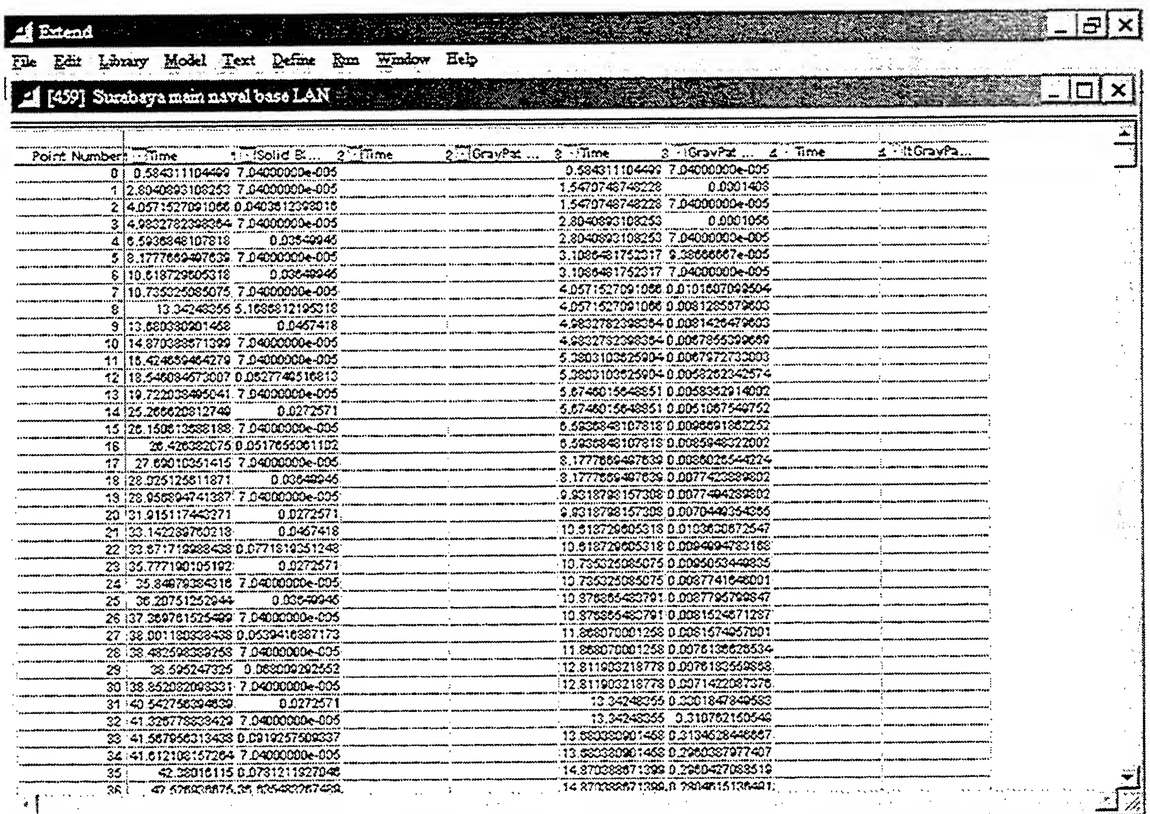


Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ltGrayPa...
0	0.0056924666667	0.0056924666667			0.0056924666667	0.0056924666667		
1	2.3833881212768	4.66000000e-005			2.3833881212768	0.0057390666667		
2	9.7261782724133	4.66000000e-005			2.3833881212768	0.0028695333333		
3	16.361665468332	4.66000000e-005			4.9521945313422	0.0028928333333		
4	17.043733926101	7.77948031e-005			4.9521945313422	0.0019285555556		
5	19.058595433266	4.66000000e-005			5.9317481450357	0.0019440888889		
6	37.426307402788	4.66000000e-005			5.9317481450357	0.0014580666667		
7	65.365255833805	4.66000000e-005			7.6559920977468	0.0014697166667		
8	100	4.66000000e-005			7.6559920977468	0.0011757733333		
9					9.7261782724133	0.0011850933333		
10					9.7261782724133	0.0009875777778		
11					9.7541463611904	0.0009953444444		
12					9.7541463611904	0.000853152381		
13					16.361665468332	0.0008598095238		
14					16.361665468332	0.0007523333333		
15					16.854670480544	0.0007581583333		
16					16.854670480544	0.0006739185185		
17					17.043733926101	0.0006825623855		
18					17.043733926101	0.000614308147		
19					19.058595433266	0.000618965147		
20					19.058595433266	0.0005826964973		
21					21.447359830012	0.0005869322609		
22					21.447359830012	0.0005196384658		
23					37.426307402788	0.0005235717391		
24					37.426307402788	0.0004932970351		
25					37.996887040266	0.0004868318516		
26					37.996887040266	0.0004621043907		
27					41.228597462469	0.0004654329621		
28					41.228597462469	0.0004250707647		
29					43.326354388403	0.0004281774313		
30					43.326354388403	0.0004014163419		
31					43.698040778526	0.0004043233419		
32					43.698040778526	0.0003805447923		
33					48.726100269961	0.0003832859638		
34					48.726100269961	0.0003619923039		
35					50.67761119746	0.0003646311928		

Run 1, Data Delay within the 6th LAN



Run 2, The 1st LAN, Using Simulation Set Up 350, Mean 1 sec, ISDN 128 Kbps



Point Number	1 Time	1 Solid B...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 GrayPa...
0	0.584311104499	7.04000000e-005			0.584311104499	7.04000000e-005		
1	2.8040893108253	7.04000000e-005			1.5470748748228	0.0001408		
2	4.0571527091066	0.040381239818			1.5470748748228	7.04000000e-005		
3	4.9832782398364	7.04000000e-005			2.8040893108253	0.0001056		
4	6.5936848107818	0.03549946			2.8040893108253	7.04000000e-005		
5	8.1777669497639	7.04000000e-005			3.1086481752317	9.38666667e-005		
6	10.618729605318	0.03649946			3.1086481752317	7.04000000e-005		
7	10.735325085075	7.04000000e-005			4.0571527091066	0.0101607099504		
8	13.34248355	5.16668121953 18			4.0571527091066	0.0081265579603		
9	13.880330901468	0.0467418			4.9832782398364	0.0081426479603		
10	14.870388871399	7.04000000e-005			4.9832782398364	0.0067855399669		
11	16.424659464279	7.04000000e-005			5.3803103525904	0.0067972733003		
12	18.546084673007	0.0527748516813			5.3803103525904	0.0058262342574		
13	19.722039495041	7.04000000e-005			5.6746015648851	0.0058352914092		
14	25.266620812749	0.0272571			5.6746015648851	0.0051067549752		
15	26.150613638188	7.04000000e-005			6.5936848107818	0.0098691862252		
16	26.426382075	0.0517656061102			6.5936848107818	0.0085948322002		
17	27.690103351415	7.04000000e-005			8.1777669497639	0.0086026544224		
18	28.025125811871	0.03649946			8.1777669497639	0.0077423989802		
19	28.956894741387	7.04000000e-005			9.9318798157308	0.0077494289802		
20	31.915117443271	0.0272571			9.9318798157308	0.0070449354355		
21	33.142289760218	0.0467418			10.618729605318	0.0103630672547		
22	33.871719983438	0.0771819351248			10.618729605318	0.0094094783168		
23	35.777190105192	0.0272571			10.735325085075	0.0095053449835		
24	35.848793384318	7.04000000e-005			10.735325085075	0.0087741648001		
25	36.207512529 44	0.03549946			10.876865480791	0.0087796799847		
26	37.369761525499	7.04000000e-005			10.876865480791	0.0081524671287		
27	38.001180328438	0.0539416387173			11.868070001258	0.0081574057001		
28	38.482598338253	7.04000000e-005			11.868070001258	0.0076138628534		
29	38.595247325	0.068009292552			12.811903218778	0.0076183559868		
30	38.852082098331	7.04000000e-005			12.811903218778	0.0071422087376		
31	40.542756394839	0.0272571			13.34248355	0.3301847849583		
32	41.326778338429	7.04000000e-005			13.34248355	0.310762150549		
33	41.567956313438	0.0919257509337			13.880330901468	0.3134628446867		
34	41.612108157264	7.04000000e-005			13.880330901468	0.2960387977407		
35	42.28016115	0.0731211927048			14.870388871399	0.2960427083519		
36	[illegible]	[illegible]			14.870388871399	[illegible]		

Run 2, Data Delay within the 1st LAN

Extend

File Edit Library Model Text Define Run Window Help

[459] Surabaya main naval base LAN

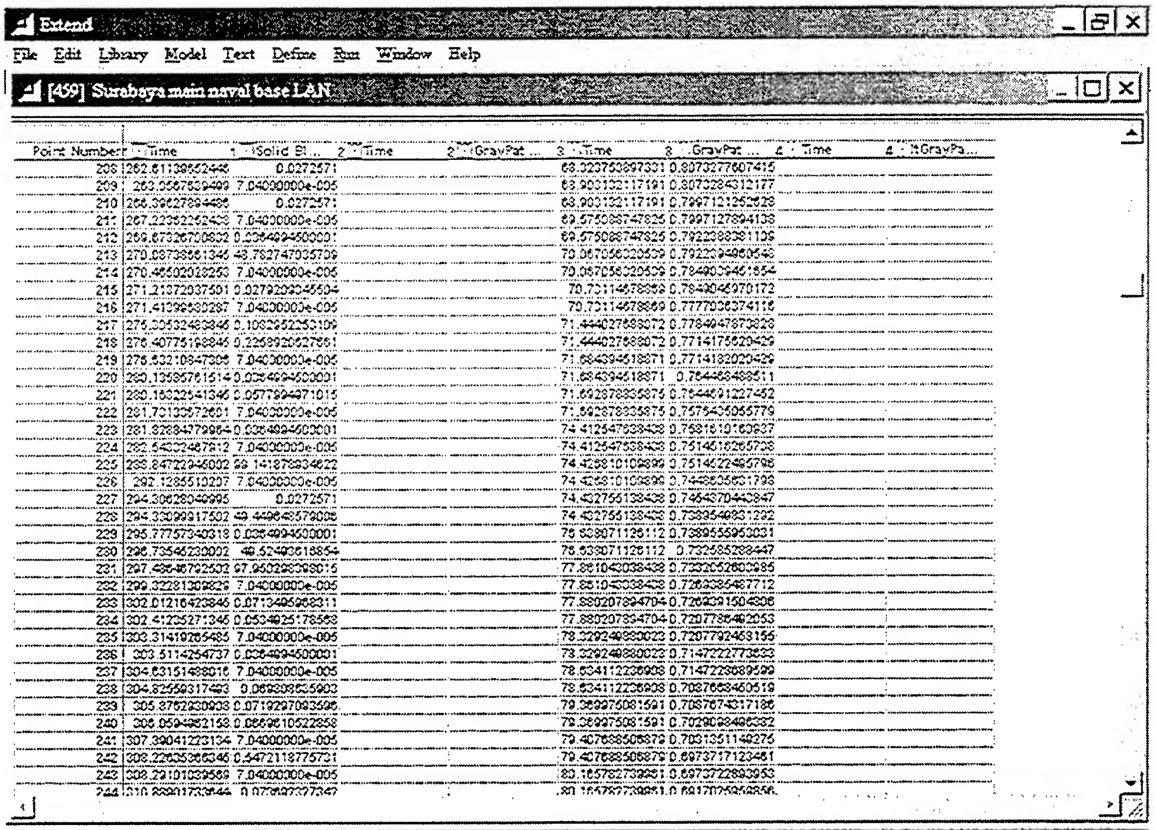
Point Number	Time	1 Solid Bl...	2 Time	2 GravPat ...	3 Time	3 GravPat ...	4 Time	4 ltGravPa...
37	42.651580462213	7.04000000e-005			16.424669464279	0.2804652189123		
38	46.969864772364	0.0852403997868			16.424669464279	0.2664419579667		
39	47.571911654011	7.04000000e-005			16.428376446851	0.2664464779667		
40	47.971983275	19.01863985098			16.428376446851	0.2537575980635		
41	49.134371263438	0.118190363764			17.227392676277	0.2537609504444		
42	49.295685532731	0.0489178697463			17.227392676277	0.2422263817879		
43	49.742264464275	0.03649946			18.546084573007	0.2460797636825		
44	50.3210644399	7.04000000e-005			18.546084573007	0.2344241265659		
45	50.463246863438	0.1962540098943			19.722028495041	0.2344271874354		
46	52.596346475	0.0749655466236			19.722039495041	0.2246593879589		
47	55.614625863104	7.04000000e-005			22.056164007986	0.2246623212923		
48	55.810539425	22.2586185729995			22.056164007986	0.2155758284406		
49	58.489188639218	0.03649946			23.111258964377	0.2155786444406		
50	58.546544985707	7.04000000e-005			23.111258964377	0.2073833119621		
51	56.553002017146	0.0272571			23.294024246688	0.2073860195544		
52	57.18975359078	7.04000000e-005			23.294024246688	0.1997050559635		
53	58.713557575	0.054121935585			23.396239697227	0.1997076603709		
54	59.134059419059	7.04000000e-005			23.396239897227	0.192575248322		
55	63.981415213437	0.0362311520415			25.266620812749	0.1935487148791		
56	64.241140320527	0.0272571			25.266620812749	0.1858748210695		
57	65.071771080444	7.04000000e-005			26.150613589188	0.1869770486557		
58	67.169597175	0.0697173727995			26.150613583188	0.1808478137005		
59	67.246987592267	7.04000000e-005			26.426382075	0.1823733305708		
60	71.444027638072	0.0862353469598			26.426382075	0.1764933199073		
61	71.684394618271	7.04000000e-005			27.69010351415	0.176492590875		
62	74.412547638438	0.0579611777773			27.69010351415	0.1709771974102		
63	74.426810109399	7.04000000e-005			28.022442900887	0.1709793974102		
64	74.432755138438	0.0657188573582			28.022442900837	0.1657932035492		
65	76.638071125112	7.04000000e-005			28.025125611871	0.1669042474886		
66	77.861040038438	0.0719187463714			28.025125611871	0.1618952990331		
67	77.880207894704	7.04000000e-005			28.956894741387	0.1619973698213		
68	79.407688505879	0.0272571			28.956894741387	0.1573683733464		
69	80.165782739961	7.04000000e-005			29.047780642846	0.157370884775		
70	80.719975625	62.530687678051			29.047780642846	0.152929471309		
71	80.747139525	0.0505206743821			29.107568406156	0.1530014268648		
72	80.937935463982	7.04000000e-005			29.107568406156	0.1488682531655		
73	82.92747469903	0.0272571			29.339879106891	0.1488681568682		

Extend

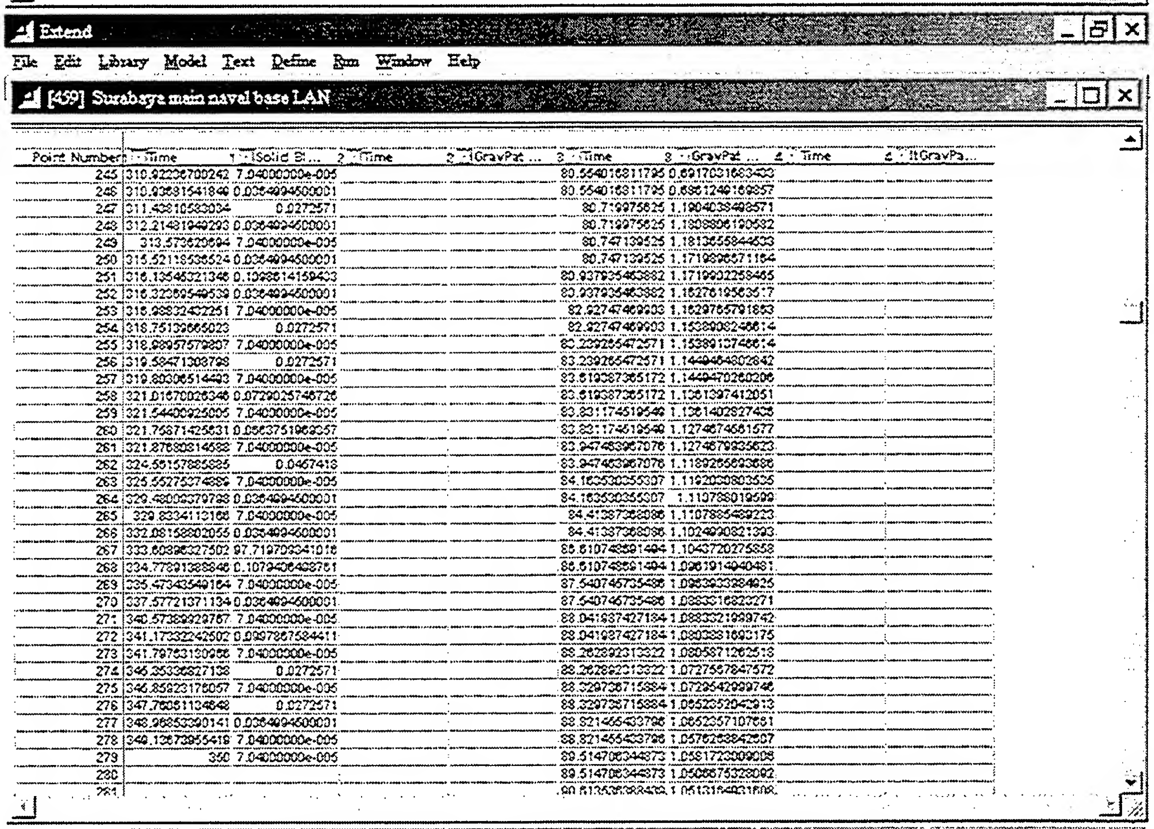
File Edit Library Model Text Define Run Window Help

[459] Surabaya main naval base LAN

Point Number	Time	1 Solid Bl...	2 Time	2 GravPat ...	3 Time	3 GravPat ...	4 Time	4 ltGravPa...
73	82.92747469903	0.0272571			29.339879106891	0.1488681568682		
74	83.239255472571	7.04000000e-005			29.339879106891	0.1449505728191		
75	84.163630355307	0.03649946			29.358316669719	0.1449524254607		
76	84.41387383086	7.04000000e-005			29.358316669719	0.1412356965929		
77	86.610748691494	0.2509746898298			30.477295028196	0.1412375017212		
78	87.540746735488	0.0272571			30.477295028196	0.1377085641781		
79	88.041987427184	7.04000000e-005			30.576316634857	0.1377083241781		
80	88.262892313322	0.0272571			30.576316634857	0.134349584664		
81	88.821465433796	7.04000000e-005			30.90446732143	0.1343513016372		
82	89.514706344873	0.0763583295988			30.90446732143	0.131152461122		
83	90.613536368409	0.0915034095321			31.354491019597	0.1311541373125		
84	91.496225712612	0.0272571			31.354491019597	0.1281040410959		
85	92.303355716529	7.04000000e-005			31.541972941942	0.1281056783052		
86	105.07227510585	0.03649946			31.541972941942	0.1251941855165		
87	107.47874623504	7.04000000e-005			31.915117443271	0.1258136551619		
88	110.16446314632	0.03649946			31.915117443271	0.1230178059351		
89	111.09646471463	7.04000000e-005			33.142289760218	0.1240342903806		
90	111.23789075	0.3462032805121			33.142289760218	0.1213378927636		
91	111.334278175	0.0577239797062			33.671719983438	0.1230157609186		
92	112.87853875253	7.04000000e-005			33.671719983438	0.1203984043032		
93	113.77292121611	0.0272571			35.777190105192	0.1209783426011		
94	113.93892471373	7.04000000e-005			35.777190105192	0.1184579804635		
95	116.06629164975	0.0272571			35.846793843316	0.1184694271302		
96	116.57325187509	7.04000000e-005			35.84679384316	0.118041887801		
97	118.23875103844	0.0537231727657			36.20751252944	0.1167857746357		
98	119.11526753692	0.0272571			36.20751252944	0.114451039046		
99	120.57967563439	7.04000000e-005			37.369781525499	0.114462447046		
100	121.41555435534	0.03649946			37.369781525499	0.1122082814187		
101	121.57933537596	7.04000000e-005			38.001180838438	0.1132659615876		
102	122.07553747582	0.0272571			38.001180838438	0.1110877700186		
103	122.82852999246	7.04000000e-005			38.482598389258	0.1110891228647		
104	134.20423399701	0.03649946			38.482598389258	0.1089931026698		
105	135.598799875	81.310898925578			38.487593518514	0.1089944309616		
106	135.89964163907	7.04000000e-005			38.487593518514	0.1069760165735		
107	136.88373355	48.4604612737			38.595247325	0.108235446917		
108	137.20876207771	7.04000000e-005			38.595247325	0.1062675297003		
109	145.64025946096	0.03649946			38.857082062031	0.1067688097003		

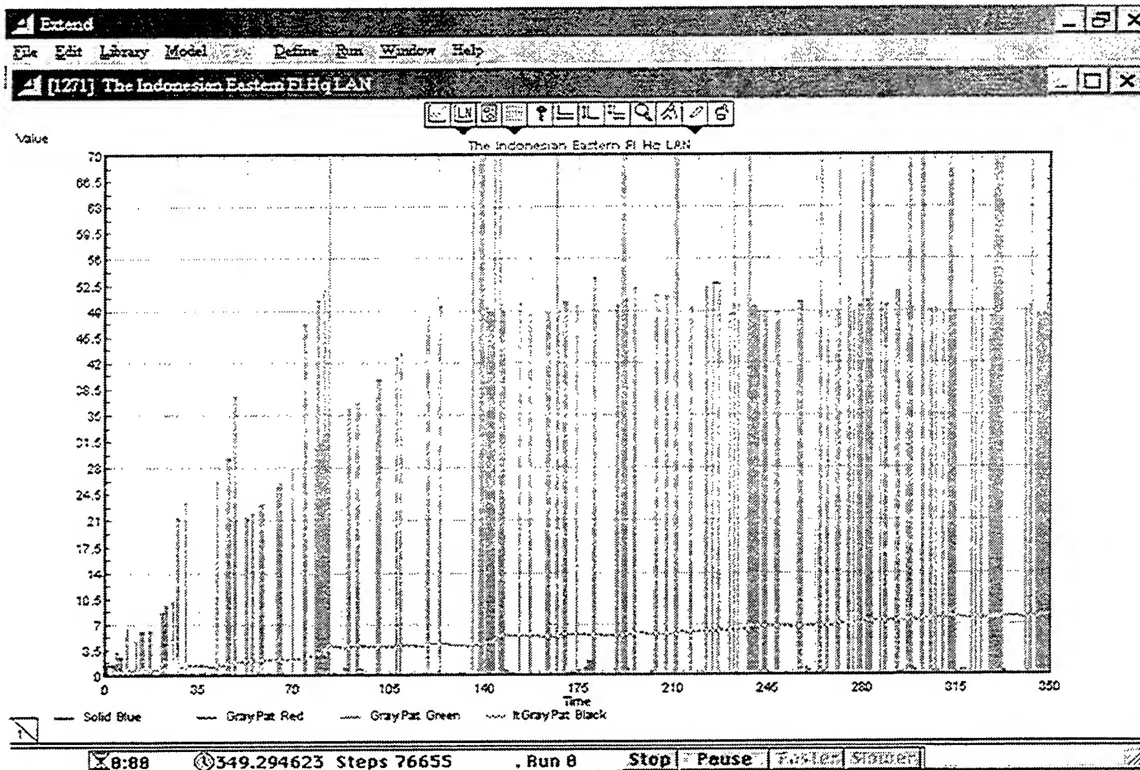


Point Number	1 : Time	1 : Solid St...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : GravPa...
208	262.61139552448	0.0272571			68.323753897331	0.8073277607415		
209	263.0567509499	7.04000000e-005			68.900132117191	0.8073284312177		
210	266.39627894486	0.0272571			68.900132117191	0.7997121252628		
211	267.22352252428	7.04000000e-005			69.575088747825	0.7997127894138		
212	269.87326720832	0.0364994600001			69.575088747825	0.7922398381109		
213	270.06738651346	48.782747035709			70.067056020509	0.7922394960546		
214	270.46502028253	7.04000000e-005			70.067056020509	0.7849030461854		
215	271.21372037501	0.0279290345504			70.73114578869	0.7849046970172		
216	271.41096680287	7.04000000e-005			70.73114578869	0.7777036374116		
217	275.30532483846	0.1082952253109			71.444027688072	0.7784947873828		
218	276.40775198846	0.2258920627861			71.444027688072	0.7714175529429		
219	276.53210847305	7.04000000e-005			71.684394518871	0.7714182029429		
220	280.13595761514	0.0364994600001			71.684394518871	0.764463488511		
221	280.16022541346	0.0577994971015			71.692878335875	0.7644491227452		
222	281.70130572651	7.04000000e-005			71.692878335875	0.7575435056779		
223	281.82884779964	0.0364994600001			74.412547938438	0.7581810160937		
224	282.54302467812	7.04000000e-005			74.412547938438	0.7514516265703		
225	288.84722945092	99.141878234822			74.425810109899	0.7514522465798		
226	292.1285510207	7.04000000e-005			74.425810109899	0.7448605631793		
227	294.30628040995	0.0272571			74.432755138438	0.7454370440847		
228	294.33099917502	49.449648579088			74.432755138438	0.7389549831292		
229	295.77757540318	0.0364994600001			76.638071126112	0.7389556953031		
230	296.73546230002	48.52493618854			76.638071126112	0.732585288447		
231	297.48646792502	97.950298398015			77.88104303843	0.7332052603985		
232	299.32281309829	7.04000000e-005			77.88104303843	0.7268386487712		
233	302.01216423846	0.0713495968311			77.880207894704	0.7269391504808		
234	302.41205271346	0.0534925178568			77.880207894704	0.7207788492053		
235	303.31419265485	7.04000000e-005			78.229249880023	0.7207792458156		
236	303.5114254737	0.0364994600001			78.229249880023	0.714722277353		
237	304.63151488016	7.04000000e-005			78.634112236908	0.7147228689599		
238	304.82559317493	0.069280855903			78.634112236908	0.7087663460519		
239	305.3762930903	0.0719297093596			79.369975081591	0.7087674317186		
240	306.0594982158	0.0869610522858			79.369975081591	0.7029098486382		
241	307.39041223134	7.04000000e-005			79.407688506879	0.7031351149275		
242	308.22635866346	0.5472118775731			79.407688506879	0.6973717123461		
243	308.29101039569	7.04000000e-005			80.165782739951	0.6973722893953		
244	310.88901739844	0.0726972272347			80.165782739951	0.6917025058856		

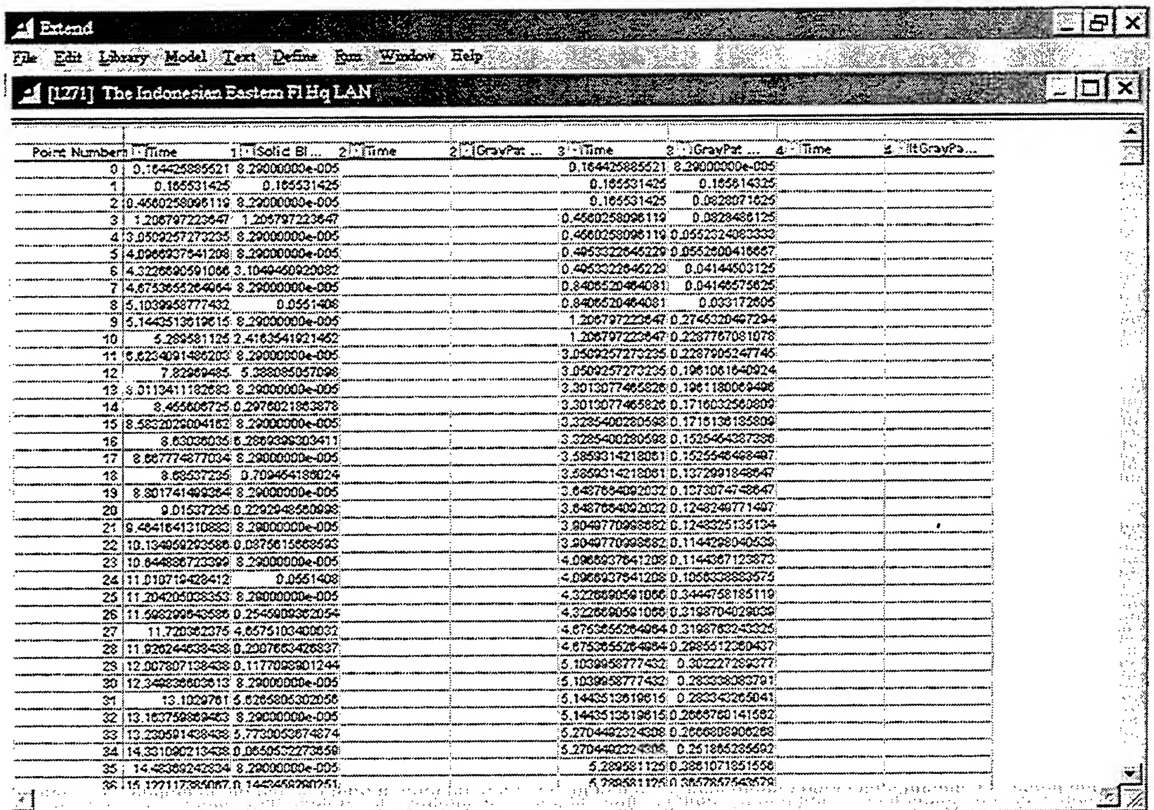


Point Number	1 : Time	1 : Solid St...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : GravPa...
245	310.92236700242	7.04000000e-005			80.554016811796	0.6917031683403		
246	310.93681541849	0.0364994600001			80.554016811795	0.6861249169357		
247	311.43810583034	0.0272571			80.719975625	1.1904038498571		
248	312.21481949293	0.0364994600001			80.719975625	1.1808806190582		
249	313.573620694	7.04000000e-005			80.747139525	1.1813655844633		
250	315.52118536524	0.0364994600001			80.747139525	1.1719896571164		
251	316.13645321348	0.1398614159403			80.937935463882	1.1719902258465		
252	316.32089549539	0.0364994600001			80.937935463882	1.1627619563517		
253	316.98832402251	7.04000000e-005			82.927474699903	1.1629765791863		
254	318.75139665023	0.0272571			82.927474699903	1.1538908246614		
255	318.98957579207	7.04000000e-005			83.239265472571	1.1538913746614		
256	319.58471308798	0.0272571			83.239265472571	1.1449464802842		
257	319.80306514493	7.04000000e-005			83.619387365172	1.1449470260206		
258	321.01670026346	0.0729025746726			83.619387365172	1.1361397412051		
259	321.54400925005	7.04000000e-005			83.831174519549	1.1361402827405		
260	321.75871425631	0.0563751968357			83.831174519549	1.1274674681577		
261	321.87680314692	7.04000000e-005			83.947463967078	1.1274679935623		
262	324.56157885985	0.0467418			83.947463967078	1.1189265693686		
263	325.55275274889	7.04000000e-005			84.163530055307	1.1192030803535		
264	329.48000379788	0.0364994600001			84.163530055307	1.1107880195099		
265	329.8334113168	7.04000000e-005			84.41387368086	1.1107885489223		
266	332.08158802055	0.0364994600001			84.41387368086	1.1024990821393		
267	333.60386327502	97.719709341018			86.610748591494	1.1043720275858		
268	334.77891388848	0.1079406408761			86.610748591494	1.0961914940461		
269	335.47343549164	7.04000000e-005			87.540746735486	1.0983933384925		
270	337.57721371134	0.0364994600001			87.540746735486	1.0883316823271		
271	340.57369929767	7.04000000e-005			88.041937427184	1.0883321999742		
272	341.17332242502	0.0997867584411			88.041937427184	1.0803331693175		
273	341.79753130958	7.04000000e-005			88.262892313322	1.0805871262513		
274	346.35336627138	0.0272571			88.262892313322	1.0727557847572		
275	346.85823178057	7.04000000e-005			88.329738715884	1.0729542999746		
276	347.76051134848	0.0272571			88.329738715884	1.0652352042913		
277	348.96853390141	0.0364994600001			88.821465433798	1.0652357107681		
278	349.13873955419	7.04000000e-005			88.821465433798	1.0576263842507		
279	350	7.04000000e-005			89.514708344373	1.0581723309008		
280					89.514708344373	1.0508675328092		
281					90.613535388439	1.0513184931808		

Run 2, Data Delay within the 1st LAN



Run 2, the 2nd LAN, Using Simulation Set Up 350, Mean 1 sec, ISDN 128 Kbps



Point Number	1 Time	1 Solid Bl ...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ltGrayPa...
0	0.164425885521	8.29000000e-005			0.164425885521	8.29000000e-005		
1	0.165531425	0.165531425			0.165531425	0.165514325		
2	0.4560258096119	8.29000000e-005			0.165531425	0.0828071625		
3	1.206797223647	1.206797223647			0.4560258096119	0.0828486125		
4	3.0509257273235	8.29000000e-005			0.4560258096119	0.0552324083333		
5	4.0968937641208	8.29000000e-005			0.4953322646229	0.0552600416667		
6	4.3226690591066	3.1049460920082			0.4953322646229	0.04144503125		
7	4.6753655264964	8.29000000e-005			0.8406520464081	0.04146575625		
8	5.1039958777432	0.0551406			0.8406520464081	0.033172605		
9	5.1443513619615	8.29000000e-005			1.206797223647	0.2746320497294		
10	5.289581125	2.4163541921462			1.206797223647	0.2287767081078		
11	6.6234091486203	8.29000000e-005			3.0509257273235	0.2287905247746		
12	7.82969485	5.338085057098			3.0509257273235	0.1961061640924		
13	8.0113411182683	8.29000000e-005			3.3013077465826	0.1961180069496		
14	8.455606725	0.2976021863878			3.3013077465826	0.1716032560809		
15	8.5832029004162	8.29000000e-005			3.3235400280598	0.1716138135809		
16	8.63036035	6.2869398303411			3.3235400280598	0.1525464387398		
17	8.687774877034	8.29000000e-005			3.5859314218061	0.1525548468497		
18	8.69537225	0.709464186024			3.5859314218061	0.1372991848647		
19	8.801741499354	8.29000000e-005			3.6487684092032	0.1373074748647		
20	9.01537235	0.2292948560998			3.6487684092032	0.1248249771497		
21	9.4641641310883	8.29000000e-005			3.9049770998682	0.1248325135134		
22	10.134959293586	0.0875615668593			3.9049770998682	0.1144298040539		
23	10.644836723399	8.29000000e-005			4.0968937641208	0.1144367123873		
24	11.010719428412	0.0551408			4.0968937641208	0.1056338883575		
25	11.204206008353	8.29000000e-005			4.3226690591066	0.3444758185119		
26	11.598299643586	0.2546909362054			4.3226690591066	0.3198704029039		
27	11.720382375	4.6575103400032			4.6753655264964	0.3198763243325		
28	11.926244633438	0.2007663426837			4.6753655264964	0.2985512360437		
29	12.007807138438	0.1177098901244			5.1039958777432	0.302227269377		
30	12.349238803613	8.29000000e-005			5.1039958777432	0.2833380383791		
31	13.1029781	5.8265805302056			5.1443513619615	0.2833432265041		
32	13.163759889463	8.29000000e-005			5.1443513619615	0.2666760141582		
33	13.230591438438	5.7730053674874			5.2704492324308	0.2666808906268		
34	14.331090213438	0.0650532273659			5.2704492324308	0.251865235692		
35	14.48369242834	8.29000000e-005			5.289581125	0.3881071851558		
36	15.12711738506?	0.144346828025?			5.289581125	0.3657857543579		

Run 2, Data Delay within the 2nd LAN

Extend

File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bi...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
37	15.320053922503	8.29000000e-005			6.6234091486203	0.3657901175158		
38	15.046904134007	8.29000000e-005			6.6234091486203	0.34750061184		
39	16.3179620	6.1062584672811			6.9127704615149	0.34750475654		
40	16.727151173969	8.29000000e-005			6.9127704615149	0.3309569110657		
41	21.4292023	8.4161609966449			7.0361320626408	0.3309609587048		
42	22.177224855767	8.29000000e-005			7.0361320626408	0.3159171833091		
43	22.753106533032	8.3181058521963			7.0599035635127	0.3159209514909		
44	23.266411583032	0.3294090966316			7.0599035635127	0.3021852579476		
45	23.293590383032	0.3949501856644			7.92969485	0.5364498256478		
46	24.169550582741	8.29000000e-005			7.92969485	0.5140877495791		
47	24.294161368408	0.1007615005162			8.0113411182683	0.5141012037458		
48	24.391659454097	8.29000000e-005			8.0113411182683	0.4935371665959		
49	25.3551398	9.8197105212823			8.0429028073164	0.4935404715959		
50	25.401795794821	8.29000000e-005			8.0429028073164	0.4745581457653		
51	25.689730775	0.1479958877387			8.4068298538604	0.4745613342259		
52	26.443770783408	0.1383303517265			8.4068298538604	0.4569346885149		
53	26.462494615878	8.29000000e-005			8.465605725	0.4690072917143		
54	27.268277275039	21.218895003199			8.465605725	0.4512827465917		
55	27.446493332553	8.29000000e-005			8.5832029004152	0.4512957082859		
56	27.954185189408	0.1542771197319			8.5832029004152	0.4057337853892		
57	28.912469159839	8.29000000e-005			8.63036035	0.6525243174699		
58	30.028292225	23.325090573421			8.63036035	0.6307739902209		
59	30.074929225	11.811148595487			8.6677748770034	0.6307787535642		
60	30.293158507382	8.29000000e-005			8.6677748770034	0.6104291163428		
61	32.347196632021	8.29000000e-005			8.68537235	0.6333147352468		
62	32.378716438408	0.1283374091056			8.68537235	0.6135236497704		
63	33.404883105384	8.29000000e-005			8.8017414093354	0.6135262400354		
64	35.285294680408	0.1980075151546			8.8017414093354	0.59403463814		
65	37.304860183408	0.4183289703782			9.01537235	0.6018826351137		
66	37.7232231	0.1219936316477			9.01537235	0.5841804279044		
67	37.7960356	0.1736421326279			9.4641641310883	0.5841828661397		
68	37.90897292178	8.29000000e-005			9.4641641310883	0.5674919271072		
69	39.5925981	0.1870818588814			10.134659293586	0.5589938981603		
70	39.844079403512	8.29000000e-005			10.134659293586	0.5541805282114		
71	40.297908975	0.0627128034226			10.644886723399	0.5541828309892		
72	40.578316277228	8.29000000e-005			10.644886723399	0.5391854671787		
73	40.663631088408	0.1704440479844			10.860977886359	0.5391878977197		

Extend

File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bi...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
74	40.856793315604	8.29000000e-005			10.860977886359	0.5249935477792		
75	41.115548257446	0.0551408			11.010719428412	0.5264496214634		
76	41.207751555785	8.29000000e-005			11.010719428412	0.5129509132208		
77	41.65499505	16.538246500276			11.204205038353	0.5129530088618		
78	41.72779605	26.068184356589			11.204205038353	0.5001292128903		
79	41.759442199429	8.29000000e-005			11.598299643586	0.5064039862954		
80	43.047027713408	0.0883493757238			11.598299643586	0.4941404744346		
81	43.868591898853	8.29000000e-005			11.720362375	0.6077332876053		
82	44.048922612553	0.2058277092399			11.720362375	0.5932683283786		
83	44.326996866296	8.29000000e-005			11.926244638408	0.5980484793929		
84	46.507272975	18.142730135224			11.926244638408	0.584140375221		
85	45.660008797364	0.4253302407107			12.007807138408	0.5868778146262		
86	46.699268525	29.050427461665			12.007807138408	0.5735396823779		
87	46.617469427762	8.29000000e-005			12.349836603613	0.5735415664688		
88	47.850657563408	0.0506137153862			12.349836603613	0.5607961983251		
89	48.060304403892	8.29000000e-005			13.1029761	0.6858313212185		
90	48.194692925	37.346406244823			13.1029761	0.6709219446703		
91	48.994970122342	8.29000000e-005			13.163759869463	0.6709237468442		
92	52.523354725	21.251542603816			13.163759869463	0.6565487735071		
93	52.882183556853	8.29000000e-005			13.230591438408	0.7794787874943		
94	54.43810855	21.842317825656			13.230591438408	0.7632395358817		
95	55.085442185643	8.29000000e-005			14.331090213408	0.7646948114619		
96	55.769297213408	0.3598052231138			14.331090213408	0.7489908357079		
97	55.867482187234	8.29000000e-005			14.483369242834	0.7489925275446		
98	57.751804225	22.314817829098			14.483369242834	0.7340126769937		
99	57.929612142376	8.29000000e-005			14.757215278116	0.7340143349937		
100	58.329497688408	0.0838202985425			14.757215278116	0.7196218970527		
101	58.682296775	0.5199484705946			14.928092912308	0.7195235225429		
102	58.777874175	23.129260052835			14.928092912308	0.7057846036478		
103	58.858938238116	8.29000000e-005			15.122117385067	0.7085604918983		
104	60.307527895403	0.1036070008213			15.122117385067	0.6951914260134		
105	60.805732738408	0.103179980468			15.320053922503	0.6951929901644		
106	61.700117177371	8.29000000e-005			15.320053922503	0.6823190469021		
107	64.035683429797	8.29000000e-005			15.778993197025	0.6823205810372		
108	64.308331125	25.267000483197			15.778993197025	0.6699147523402		
109	64.359284283584	8.29000000e-005			16.046904134007	0.6599162596129		
110	65.27717105	25.780409708888			16.046904134007	0.6579634897677		

Extend

File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 GrayPa...
490	313.25936923644	49.513640085318			87.287704494714	3.7768033661743		
491	313.58196208314	98.878764412979			87.704367969217	3.7768037031662		
492	313.83502503644	0.2713759765303			87.704367989217	3.7515129999146		
493	313.89018262253	8.29000000e-005			87.802778767871	3.7615133355421		
494	314.10429042503	48.775182402656			87.802778767871	3.74634594306		
495	314.20744878491	8.29000000e-005			89.205218838439	3.7503125615279		
496	314.85189428346	0.0830130563958			89.205218838439	3.7352510652969		
497	314.77355296246	0.1346181706835			89.315242638439	3.7362376219153		
498	315.00176686235	8.29000000e-005			89.315242638439	3.7212926714276		
499	315.94632943846	0.1909824613647			89.480713791891	3.7212930030276		
500	316.07228062252	8.29000000e-005			89.480713791891	3.7064671344696		
501	316.97347483846	0.6407297065213			90.000114963439	3.7064675819525		
502	317.07315491021	8.29000000e-005			90.000114963439	3.6917593772633		
503	317.36938831346	0.4827346901225			90.213186875001	3.8299637773675		
504	318.86647123842	8.29000000e-005			90.213186875001	3.814825580619		
505	320.14487831346	0.4147265998304			90.378555600001	3.9584085058194		
506	320.18146176423	8.29000000e-005			90.378555600001	3.940830102054		
507	320.83772972502	100.76412011832			90.87748076572	3.9408304284319		
508	320.92558732348	8.29000000e-005			90.87748076572	3.9253761914577		
509	322.30467106002	51.583792046146			92.830174840847	3.9253785185557		
510	322.4059314083	8.29000000e-005			92.830174840847	3.9100430146379		
511	324.05806713095	0.3674074389887			92.933000859028	3.910043338368		
512	324.40051731121	8.29000000e-005			92.933000859028	3.8949291619522		
513	324.60789893095	49.187469571788			92.964386733671	3.8949294846203		
514	324.76539387321	8.29000000e-005			92.964386733671	3.8797332462082		
515	325.42446143095	0.2260882634755			93.416995295197	3.879733587526		
516	325.54210416491	8.29000000e-005			93.416995295197	3.8647539012421		
517	325.80062160595	0.1383356913535			93.490139800001	4.0052987582807		
518	325.85584630595	0.1308638078887			93.490139800001	3.9898937630565		
519	325.95584630595	0.2101656641758			94.009218375001	3.9927942001043		
520	326.45702771346	0.0893952427407			94.009218375001	3.977496138035		
521	326.92017839469	8.29000000e-005			95.361732502324	3.9774984656595		
522	327.44026501221	0.0544794			95.361732502324	3.9623151714776		
523	327.91870301763	0.0551408000001			95.461405875001	3.9641434984875		
524	327.93356550002	48.070104038891			95.461405875001	3.9480707075275		
525	328.1439842511	8.29000000e-005			95.660358747836	3.9480710227368		
526	328.90447886346	0.0455379237178			95.660358747836	3.9341174203772		

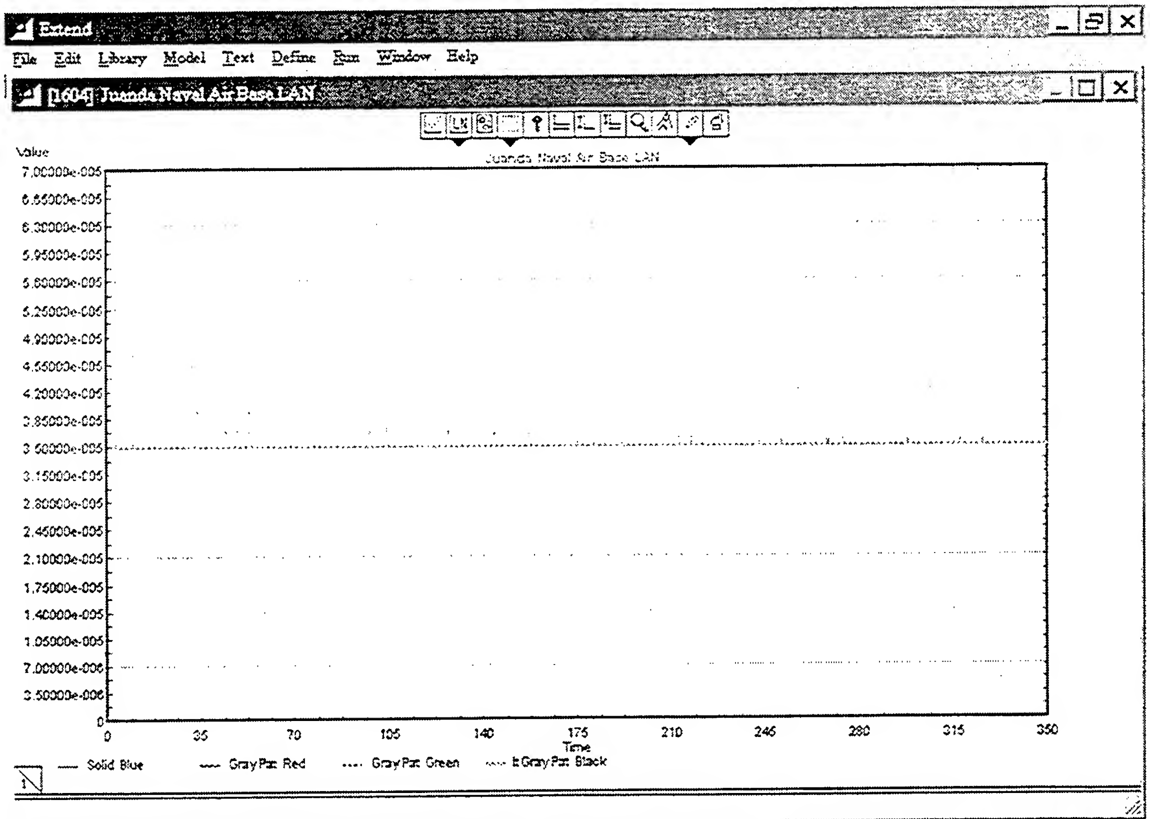
Extend

File Edit Library Model Text Define Run Window Help

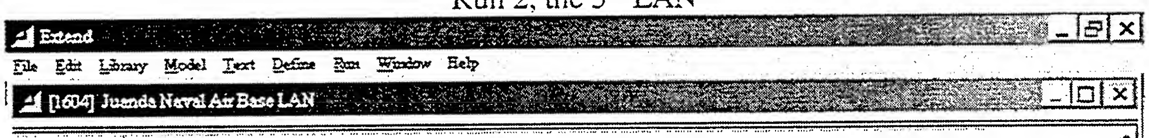
[1271] The Indonesian Eastern Fl Hq LAN

Point Number	Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 GrayPa...
527	328.94831968815	8.29000000e-005			95.663009343123	3.9341127343929		
528	329.38734117238	0.0914251999999			95.663009343123	3.9192670259613		
529	329.44942875002	97.68761879618			97.432145529589	3.9192673387914		
530	329.77971745195	8.29000000e-005			97.432145529589	3.9045332510518		
531	331.07435855002	146.70756461244			98.003959099078	3.9045335827058		
532	331.92256797309	8.29000000e-005			98.003959099078	3.8899098414971		
533	333.39242193046	0.3655202051573			98.949434597302	3.889910151984		
534	333.65990630915	8.29000000e-005			98.949434597302	3.8753955618547		
535	334.64085127889	0.0544794			98.979568434415	3.875395871193		
536	334.7222753652	8.29000000e-005			98.979568434415	3.8609891950919		
537	335.67405674619	0.0551408000001			99.389312275002	3.8612560549512		
538	335.75505725924	8.29000000e-005			99.389312275002	3.8469551065995		
539	338.05657712098	0.0551408000001			99.525087831096	3.8471593317847		
540	338.71616130174	0.0729523000001			99.525087831096	3.8329631718888		
541	339.04695341129	8.29000000e-005			100.17376213904	3.8329634777929		
542	340.82647972502	48.854823341919			100.17376213904	3.818871700301		
543	340.90492440754	8.29000000e-005			101.01562035	3.9642037971092		
544	342.33779605003	49.490025232757			101.01562035	3.9496829040795		
545	343.15921398971	8.29000000e-005			101.67267575669	3.9496832077425		
546	343.17123448346	97.230356380428			101.67267575669	3.9352683055246		
547	343.35584788886	8.29000000e-005			101.81680609583	3.9352686080792		
548	344.36797674934	0.0272571			101.81680609583	3.9209585404135		
549	344.78857783968	8.29000000e-005			101.86281022256	3.920958841868		
550	345.30578860003	48.358433755566			101.86281022256	3.9067524692526		
551	346.81417892886	8.29000000e-005			103.52501818944	3.9067527695149		
552	346.76371501338	0.1278723746085			103.52501818944	3.8926489690026		
553	346.72646792503	47.8838463829			103.68881858344	3.8928382094464		
554	346.97215072503	48.916738739179			103.68881858344	3.8788351940035		
555	347.02083162657	8.29000000e-005			103.91521273654	3.8788354625605		
556	347.26025541087	0.0729523000001			103.91521273654	3.8649328563811		
557	347.61203850003	48.405985515646			104.26683485509	3.8649331534637		
558	347.65983574247	8.29000000e-005			104.26683485509	3.8511293207726		
559	348.89279505003	48.452872323794			104.38253958612	3.8511301168442		
560	348.97485110003	49.580235258852			104.38253958612	3.8374250274604		
561	349.40065016049	8.29000000e-005			104.48837068071	3.8374253224782		
562	350	8.29000000e-005			104.48837068071	3.8238174312638		
563					104.58683372643	3.8238177757254		

Run 2, Data Delay within the 2nd LAN

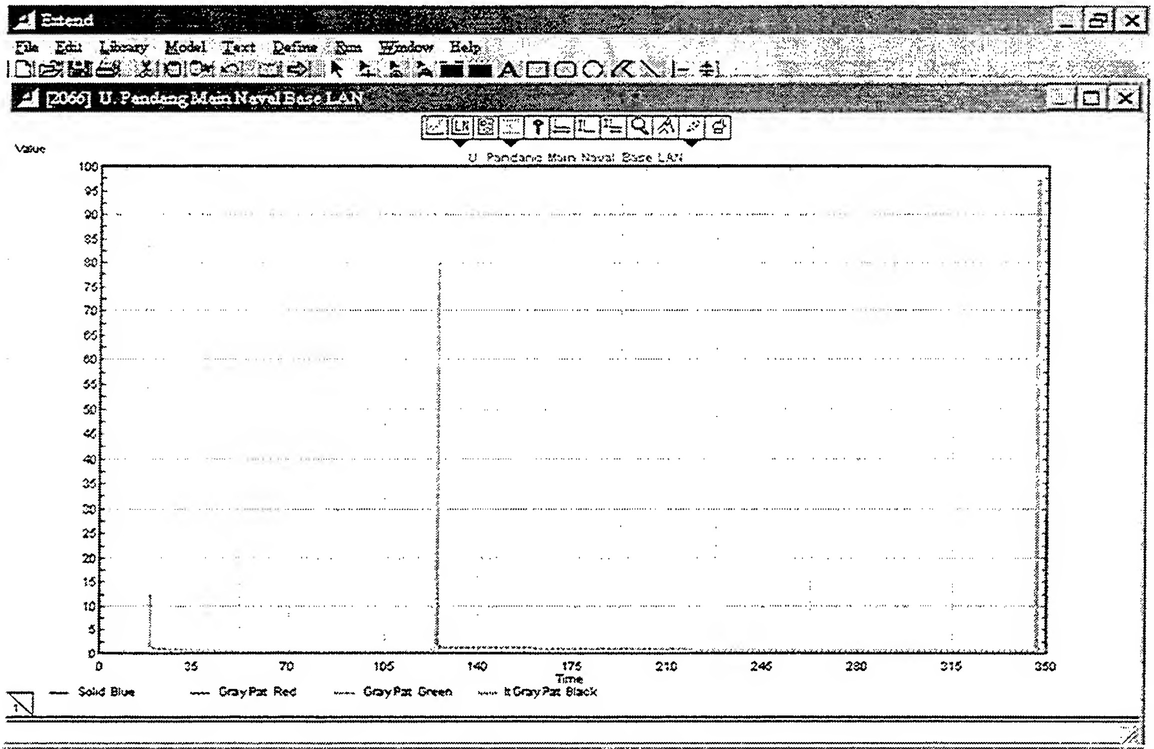


Run 2, the 3rd LAN



Point Number	1 Time	1 Solid S...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ltGrayPa...
0	3.4699518437412	3.48000000e-005			3.4699518437412	3.48000000e-005		
1	32.100177329274	3.48000000e-005			3.7865246051559	6.96000000e-005		
2	68.326829589647	3.48000000e-005			3.7865246051559	3.48000000e-005		
3	138.7287202985	3.48000000e-005			9.9897041134698	5.22000000e-005		
4	259.4606100743	3.48000000e-005			9.9897041134698	3.48000000e-005		
5	350	3.48000000e-005			32.100177329274	4.64000000e-005		
6					32.100177329274	3.48000000e-005		
7					34.011221283435	4.35000000e-005		
8					34.011221283435	3.48000000e-005		
9					43.938317147746	4.17600000e-005		
10					43.938317147746	3.48000000e-005		
11					44.8011495556	4.06000000e-005		
12					44.8011495556	3.48000000e-005		
13					49.025197335412	3.97714286e-005		
14					49.025197335412	3.48000000e-005		
15					53.313825510728	3.91500000e-005		
16					53.313825510728	3.48000000e-005		
17					59.032896858995	3.86666667e-005		
18					59.032896858995	3.48000000e-005		
19					68.326829589647	3.82800000e-005		
20					68.326829589647	3.48000000e-005		
21					73.480375316181	3.79636364e-005		
22					73.480375316181	3.48000000e-005		
23					76.957392494663	3.77000000e-005		
24					76.957392494663	3.48000000e-005		
25					93.306016726984	3.74769231e-005		
26					93.306016726984	3.48000000e-005		
27					104.51362298328	3.72857143e-005		
28					104.51362298328	3.48000000e-005		
29					114.87749407047	3.71200000e-005		
30					114.87749407047	3.48000000e-005		
31					119.97428280189	3.69750000e-005		
32					119.97428280189	3.48000000e-005		
33					127.36539903621	3.68470588e-005		
34					127.36539903621	3.48000000e-005		
35					127.90663981888	3.67333333e-005		
36					127.90663981888	3.48000000e-005		

Run 2, Data Delay within the 3rd LAN



Run 2, the 4th LAN

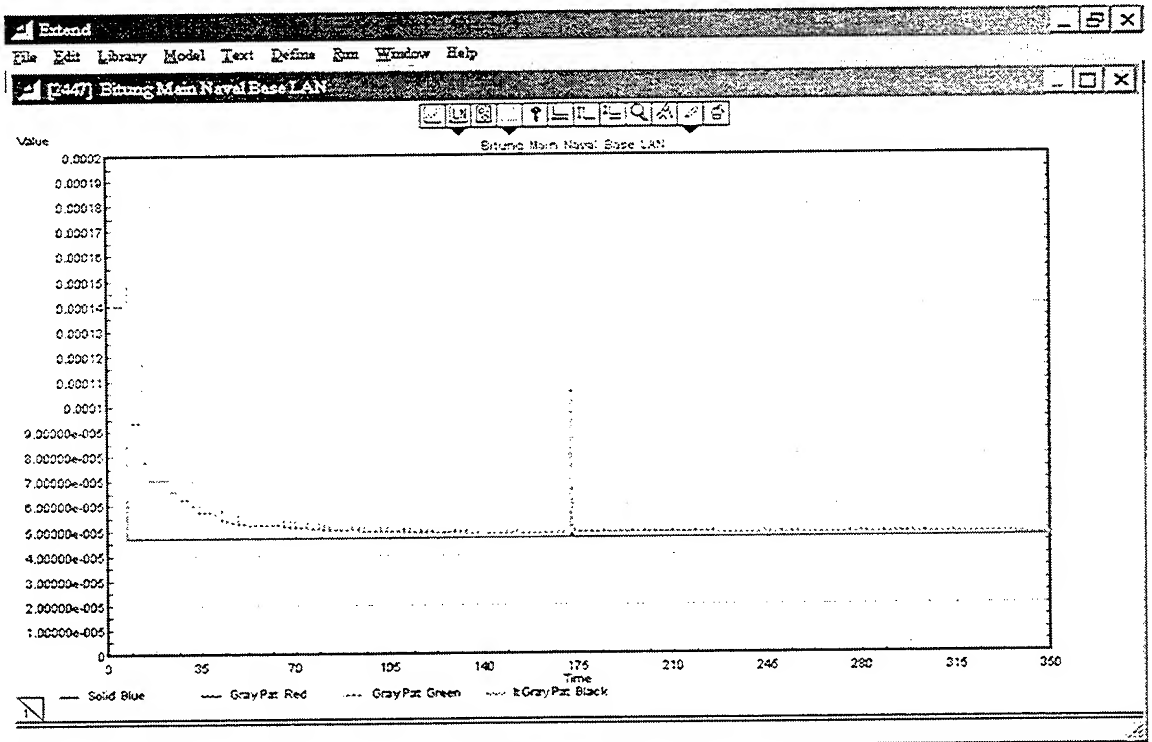
Extend

File Edit Library Model Text Define Run Window Help

[2066] U. Pandang Main Naval Base LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ltGrayPa...
0	2.0127984090966	5.84000000e-005			2.0127984090966	5.84000000e-005		
1	4.463110659516	5.84000000e-005			2.035597452375	0.0001168		
2	19.180217925	12.0848830878 11			2.035597452375	5.84000000e-005		
3	19.203591697735	5.84000000e-005			4.463110659516	8.76000000e-005		
4	110.26659582371	0.176416553006			4.463110659516	5.84000000e-005		
5	113.47016984855	5.84000000e-005			5.0826542356168	7.78666667e-005		
6	124.7298273	79.513531083931			5.0826542356168	5.84000000e-005		
7	125.27873137852	5.84000000e-005			6.3636309046051	7.30000000e-005		
8	161.87000896344	0.0647389901891			6.3636309046051	5.84000000e-005		
9	161.98582017536	5.84000000e-005			7.3617801283646	7.00800000e-005		
10	180.36576484705	0.0970130071221			7.3617801283646	5.84000000e-005		
11	182.50032325253	5.84000000e-005			7.5749865315426	6.81333333e-005		
12	249.43741518178	0.1047266840695			7.5749865315426	5.84000000e-005		
13	250.75858228261	5.84000000e-005			14.802288126013	6.67428571e-005		
14	330.46293951346	0.1730805059636			14.802288126013	5.84000000e-005		
15	333.17814430728	5.84000000e-005			17.717879711542	6.57000000e-005		
16	346.24948327503	97.132114359425			17.717879711542	5.84000000e-005		
17	348.7875730311	5.84000000e-005			18.534265330154	6.48888889e-005		
18	350	5.84000000e-005			18.534265330154	5.84000000e-005		
19					19.180217925	1.2085487087811		
20					19.180217925	1.0988788261646		
21					19.203591697735	1.0988841352555		
22					19.203591697735	1.0071271239342		
23					20.981088856254	1.0071319906509		
24					20.981088856254	0.9296602990624		
25					23.873237639909	0.92966479137		
26					23.873237639909	0.863260183415		
27					25.975472770742	0.8632643348436		
28					25.975472770742	0.8057133791874		
29					26.235398878439	0.8057172725207		
30					26.235398878439	0.7553599429882		
31					27.877497010672	0.7553635929882		
32					27.877497010672	0.7109304404594		
33					30.512742802343	0.7109339757536		
34					30.512742802343	0.6714375463223		
35					35.821900073624	0.6714407937673		

Run 2, Data Delay within the 4th LAN

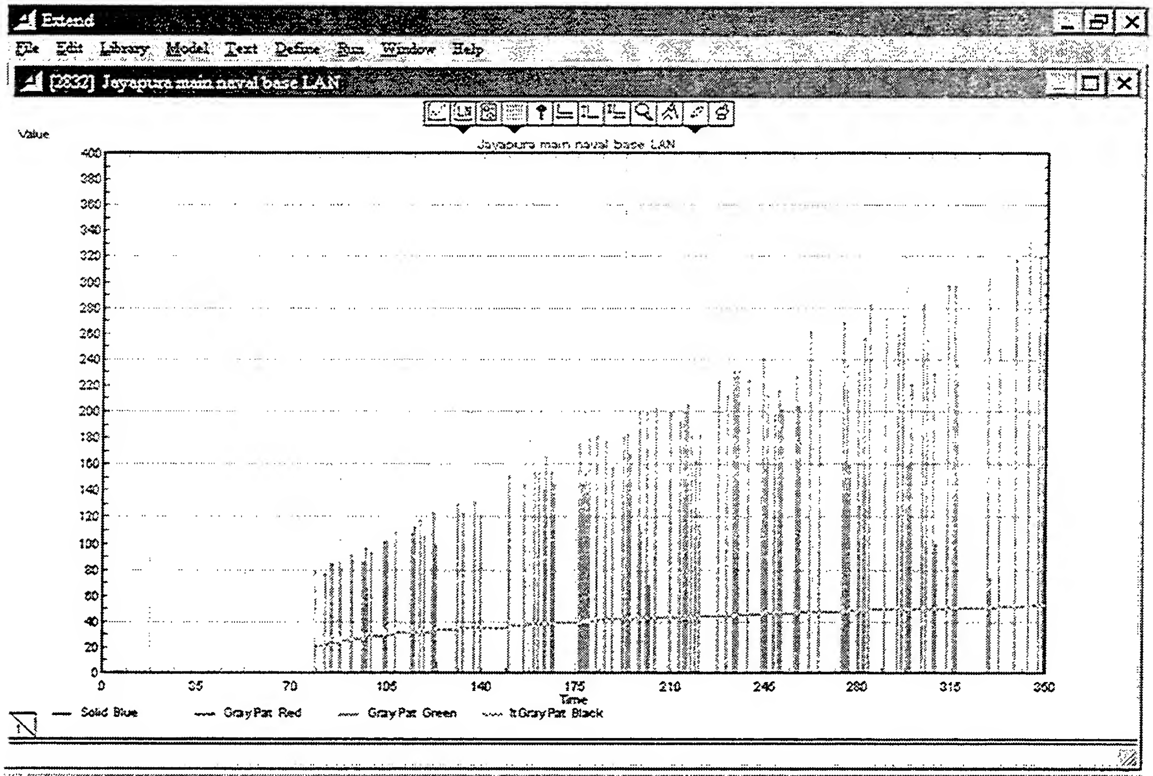


Run 2, the 5th LAN

Extend
File Edit Library Model Text Define Run Window Help
[2447] Bitung Main Naval Base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : GrayPa...
0	0.0001398	0.0001398			0.0001398	0.0001398		
1	7.1787566222812	4.66000000e-005			7.1787566222812	0.0001864		
2	13.341620488685	4.66000000e-005			7.1787566222812	9.32000000e-005		
3	23.470647103424	4.66000000e-005			13.341620488685	0.0001165		
4	32.025731532254	4.66000000e-005			13.341620488685	7.75666667e-005		
5	65.1677754298	4.66000000e-005			15.614147112027	9.32000000e-005		
6	129.14676397109	4.66000000e-005			15.614147112027	6.99000000e-005		
7	172.51787895001	0.0001050724341			23.470647103424	8.15500000e-005		
8	173.283314098	4.66000000e-005			23.470647103424	6.52400000e-005		
9	256.73383876331	4.66000000e-005			26.890433619841	7.45600000e-005		
10	350	4.66000000e-005			26.890433619841	6.21333333e-005		
11					32.025731532254	6.99000000e-005		
12					32.025731532254	5.99142857e-005		
13					33.283150391949	6.65714286e-005		
14					33.283150391949	5.82500000e-005		
15					33.870364084825	6.40750000e-005		
16					33.870364084825	5.69555556e-005		
17					39.787794791257	6.21333333e-005		
18					39.787794791257	5.59200000e-005		
19					40.908816715625	6.05800000e-005		
20					40.908816715625	5.50727273e-005		
21					41.578822432134	5.93090909e-005		
22					41.578822432134	5.43666667e-005		
23					42.995375057175	5.82500000e-005		
24					42.995375057175	5.37692308e-005		
25					43.868125718646	5.73538462e-005		
26					43.868125718646	5.32571429e-005		
27					46.755096893073	5.65857143e-005		
28					46.755096893073	5.28133333e-005		
29					48.848380037858	5.59200000e-005		
30					48.848380037858	5.24250000e-005		
31					52.371342903808	5.53375000e-005		
32					52.371342903808	5.20823529e-005		
33					65.1677754298	5.48235294e-005		
34					65.1677754298	5.17777778e-005		
35					65.24852552608	5.43666667e-005		
36					65.24852552608	[illegible]		

Run 2, Data Delay within the 5th LAN



Run 2, the 6th LAN

Point Number	1 :Time	1 :Solid Bl...	2 :Time	2 :GrayPat ...	3 :Time	3 :GrayPat ...	4 :Time	4 :ltGrayPa...
0	0.03649946	0.03649946			0.03649946	0.03649946		
1	1.3812797208692	4.65000000e-005			1.3812797208692	0.03654605		
2	1.7499399227659	0.0272571			1.3812797208692	0.018273025		
3	4.8717516762246	4.65000000e-005			1.7499399227659	0.031901575		
4	9.1064832172541	4.65000000e-005			1.7499399227659	0.0212677166667		
5	17.3048117323	4.65000000e-005			4.8717516762246	0.02128325		
6	32.333429958041	4.65000000e-005			4.8717516762246	0.0159624375		
7	65.214639741133	4.65000000e-005			7.9660833469054	0.0159740675		
8	78.262754643148	32.862839050987			7.9660833469054	0.01277927		
9	78.262754643148	2.9066207850049			9.1064832172541	0.01278659		
10	78.262754643148	34.754226707919			9.1064832172541	0.0106571583333		
11	78.262754643148	76.756259308883			12.912875930836	0.010664625		
12	78.262754643148	62.475001678203			12.912875930836	0.0091413642857		
13	78.262754643148	2.304233655563			14.203687048663	0.0091480214286		
14	78.262754643148	6.1427111376961			14.203687048663	0.00800451875		
15	78.262754643148	63.884414233081			17.3048117323	0.00801034375		
16	78.262754643148	57.109199339849			17.3048117323	0.0071203055556		
17	78.262754643148	37.513293621927			17.378730829619	0.0071254833333		
18	78.262754643148	53.134268339036			17.378730829619	0.006412935		
19	78.262754643148	2.4752464107028			17.947395973484	0.006417595		
20	78.262754643148	51.5137711548			17.947395973484	0.0058341772727		
21	78.262754643148	5.9404371433185			18.358781012958	0.0058384136364		
22	78.262754643148	2.4635995112971			18.358781012958	0.0053513791667		
23	78.262754643148	53.335543075605			19.981237987469	0.0053557625		
24	78.262754643148	68.293129037324			19.981237987469	0.0049407807692		
25	78.262754643148	62.389328966718			19.968122241871	0.0049473653846		
26	78.262754643148	2.3527468295461			19.968122241871	0.0045939821429		
27	78.262754643148	76.255460013481			20.409059962473	0.0045973107143		
28	78.262754643148	34.601606341468			20.409059962473	0.0042908233333		
29	78.262754643148	50.533427600756			22.183383001353	0.00429393		
30	78.262754643148	54.903945063446			22.183383001353	0.004025559375		
31	78.262754643148	5.8824489705316			23.497606968423	0.004028471875		
32	78.262754643148	5.6788598821155			23.497606968423	0.0037915029412		
33	78.262754643148	32.115669015642			28.148213294308	0.0037942441176		
34	78.262754643148	2.1820628895456			28.148213294308	0.0035834627778		
35	78.262754643148	34.443399023432			28.674278653082	0.0035860415667		
36	78.262754643148	1.9861859121584			28.674278653082	0.0033973076316		

Run 2, Data Delay within the 6th LAN

Extend

File Edit Library Model Text Define Run Window Help

[2832] Jayapura main naval base LAN

Point Number	1 : Time	1 : Solid S...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
37	78.262754640148	46.317710580952			29.86527569849	0.0033997552832		
38	78.262754640148	34.56857147 1676			29.86527569849	0.0032297675		
39	78.262754640148	68.415495404699			30.3184200760 11	0.003232067 5		
40	78.262754640148	62.239605557128			30.31842007601 1	0.0030781880952		
41	78.262754640148	1.9823852831921			32.39342995 8041	0.0030804071429		
42	78.262754640148	32.0295158460 34			32.39342995 8041	0.0029403866364		
43	78.262754640148	61.987811576636			33.014571555158	0.0029425068182		
44	78.262754640148	1.7035330833405			33.014671555158	0.0028146717391		
45	78.262754640148	38.757840885802			34.449812424298	0.002815697826 1		
46	78.262754640148	68.847730 54003			34.449812424298	0.0025992095930		
47	78.262754640148	1.7400409492254			38.808650054823	0.00270118125		
48	78.262754640148	1.6002699910053			38.808650054823	0.002590134		
49	78.262754640148	50.328238465099			39.95076174265	0.002594698		
50	78.262754640148	77.027495380922			39.95076174265	0.0024651903946		
51	78.262754640148	82.055349790 32			40.981951911148	0.0024659826923		
52	78.262754640148	1.708221398844 1			40.981951911148	0.0024046018519		
53	78.262754640148	5.5057752871282			40.501130404057	0.0024052277778		
54	78.262754640148	1.4108205308825			40.501130404057	0.0022020291071 4		
55	78.262754640148	4.8049999962048			50.762272035667	0.0023219553571		
56	78.262754640148	73.173737874342			50.762272035667	0.002241897801		
57	78.262754640148	1.5871131775890			51.01813505946	0.0022434948276		
58	78.262754640148	55.513357780558			51.01813505946	0.0021887118667		
59	78.262754640148	22.292014026698			55.563808970698	0.002170265		
60	78.262754640148	4.8557407870628			55.563808970698	0.0021002564616		
61	78.262754640148	51.162996783109			61.593808111707	0.0021017596774		
62	78.262754640148	1.2021509002093			61.593808111707	0.0020980798875		
63	78.262754640148	33.725354998206			65.214638741133	0.0020375359375		
64	78.262754640148	4.8422202946453			65.214638741133	0.0019757924242		
65	78.262754640148	62.022582528827			66.19738419848	0.0019772046466		
66	78.262754640148	73.405718955381			66.19738419848	0.0019190514705		
67	78.262754640148	1.0313978470992			66.420752666354	0.0019204220588		
68	78.262754640148	62 177843714141			66.420752666354	0.0018655528571		
69	78.262754640148	1.0931280848104			68.46086579439	0.0018669842857		
70	78.262754640148	31.407551820774			68.46086579439	0.0018150263889		
71	78.262754640148	35.985470095491			68.876833925874	0.0018163208333		
72	78.262754640148	1.2511119513683			68.876833925874	0.0017672310811		
73	78.262754643148	1.3518138823763			71.598434046054	0.0017684405405		

Extend

File Edit Library Model Text Define Run Window Help

[2832] Jayapura main naval base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
74	78.262754643148	1.5591697098794			71.598434046054	0.0017219513158		
75	78.262754643148	31.228025023322			78.262754643148	0.8865335052391		
76	78.262754643148	75.879097215138			78.262754643148	0.9430235259472		
77	78.262754643148	34.018267971138			78.262754643148	1.8578084393134		
78	78.262754643148	32.920805846009			78.262754643148	3.8775100000735		
79	78.262754643148	69.208933428586			78.262754643148	5.5215689916053		
80	78.262754643148	30.925530072693			78.262754643148	5.5953848141291		
81	78.262754643148	9.779355911253			78.262754643148	5.7570348085332		
82	78.262754643148	0.5147442127877			78.262754643148	7.4382037067722		
83	78.262754643148	4.5314671267818			78.262754643148	8.9419773893998		
84	78.262754643148	30.821250375794			78.262754643148	9.9282693268189		
85	78.262754643148	0.6778032788019			78.262754643148	11.326539547583		
86	78.262754643148	0.5261217187521			78.262754643148	11.391677584707		
87	78.262754643148	0.6702806078104			78.262754643148	12.749834720059		
88	78.262754643148	52.498781326259			78.262754643148	12.905262013605		
89	78.262754643148	32.752848828237			78.262754643148	12.971093579691		
90	78.262754643148	0.5085468425724			78.262754643148	14.074686818523		
91	78.262754643148	63.001725078089			78.262754643148	15.171874424758		
92	78.262754643148	0.5804073635237			78.262754643148	17.813698371261		
93	78.262754643148	68.254943859404			78.262754643148	17.875613264144		
94	78.262754643148	0.2735158357351			78.262754643148	19.88233563292		
95	78.262754643148	4.528242080901			78.262754643148	20.792804194607		
96	78.262754643148	4.8460998100061			78.262754643148	22.122852815609		
97	78.262754643148	0.7206318863261			78.262754643148	23.567703475174		
98	78.262754643148	4.5824198029818			78.262754643148	23.722504763872		
99	78.262754643148	51.03255832827			78.262754643148	23.871948444454		
100	78.262754643148	30.816134209244			78.262754643148	24.717094734063		
101	78.262754643148	0.3773752787794			78.262754643148	24.774517441983		
102	78.262754643148	50.435442350675			78.262754643148	25.680922879441		
103	78.262754643148	4.66000000e-005			78.262754643148	25.733190729761		
104	82.231793386015	1.5091325584898			78.262754643148	26.952077850313		
105	82.231793386015	57.88677994819			78.262754643148	27.881777099567		
106	82.231793386015	1.4477147825937			78.262754643148	29.882184573373		
107	82.231793386015	52.842555530552			78.262754643148	31.300069230139		
108	82.231793386015	1.4135850566119			78.262754643148	31.352237283381		
109	82.231793386015	5.161171702853			78.262754643148	32.195382417202		
110	82.231793386015	68.6796049504[illegible]			78.262754643148	33.826540816[illegible]		

Extend

File Edit Library Model Text Define Run Window Help

[2832] Jayapura main naval base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
3870	343.72584980819	0.0220839573592			204.08805395353	43.550831875697		
3871	343.72584980819	4.66000000e-005			204.08805395353	43.528284485228		
3872	347.12624896257	49.791464611386			204.08805395353	43.505660835741		
3873	347.12624896257	85.787465293095			204.08805395353	43.483080293553		
3874	347.12624896257	49.862490389318			204.08805395353	43.460483341905		
3875	347.12624896257	15.977113695l8			204.08805395353	43.437929976694		
3876	347.12624896257	1.3123720125308			204.08805395353	43.415399930026		
3877	347.12624896257	219.92220249074			204.08805395353	43.392893242659		
3878	347.12624896257	64.2046301224			204.08805395353	43.370409878285		
3879	347.12624896257	60.276256075319			204.08805395353	43.347949800658		
3880	347.12624896257	64.01382460324			204.08805395353	43.325512972649		
3881	347.12624896257	313.57060832415			204.08805395353	43.303099361140		
3882	347.12624896257	1.1203492143293			204.08805395353	43.280708927141		
3883	347.12624896257	127.71160017982			204.08805395353	43.258341635705		
3884	347.12624896257	1.0465059423594			204.08805395353	43.235997460976		
3885	347.12624896257	1.0391374007093			204.08805395353	43.213676337166		
3886	347.12624896257	49.746579546553			204.08805395353	43.19137825856		
3887	347.12624896257	49.474634800443			204.08805395353	43.16910317962		
3888	347.12624896257	98.199366156529			204.08805395353	43.146851384479		
3889	347.12624896257	15.598333935583			204.08805395353	43.124621877944		
3890	347.12624896257	59.837821968224			204.08805395353	43.102415584495		
3891	347.12624896257	1.0053529989874			204.08805395353	43.080232143785		
3892	347.12624896257	0.8560335304305			204.08805395353	43.05807152554		
3893	347.12624896257	15.710603541212			204.08805395353	43.035933709558		
3894	347.12624896257	0.9057037862586			204.08805395353	43.013818635709		
3895	347.12624896257	146.24903473143			204.08805395353	42.991725278937		
3896	347.12624896257	15.835578325405			204.08805395353	42.969656604256		
3897	347.12624896257	203.43254604871			204.08805395353	42.947609578752		
3898	347.12624896257	0.8789158994642			204.08805395353	42.925585181585		
3899	347.12624896257	0.8335365852576			204.08805395353	42.925585185482		
3900	347.12624896257	80.987307041513			204.08805395353	42.903583347868		
3901	347.12624896257	0.5507981897173			204.34739235922	42.903688426466		
3902	347.12624896257	293.26751008347			204.34739235922	42.982139301871		
3903	347.12624896257	15.480335718182			204.34739235922	42.985241317687		
3904	347.12624896257	48.470398708078			204.34739235922	42.985293488056		
3905	347.12624896257	298.03326806979			204.34739235922	42.985352880374		
3906	347.12624896257	170.65377259467			204.34739235922	42.988390657772		

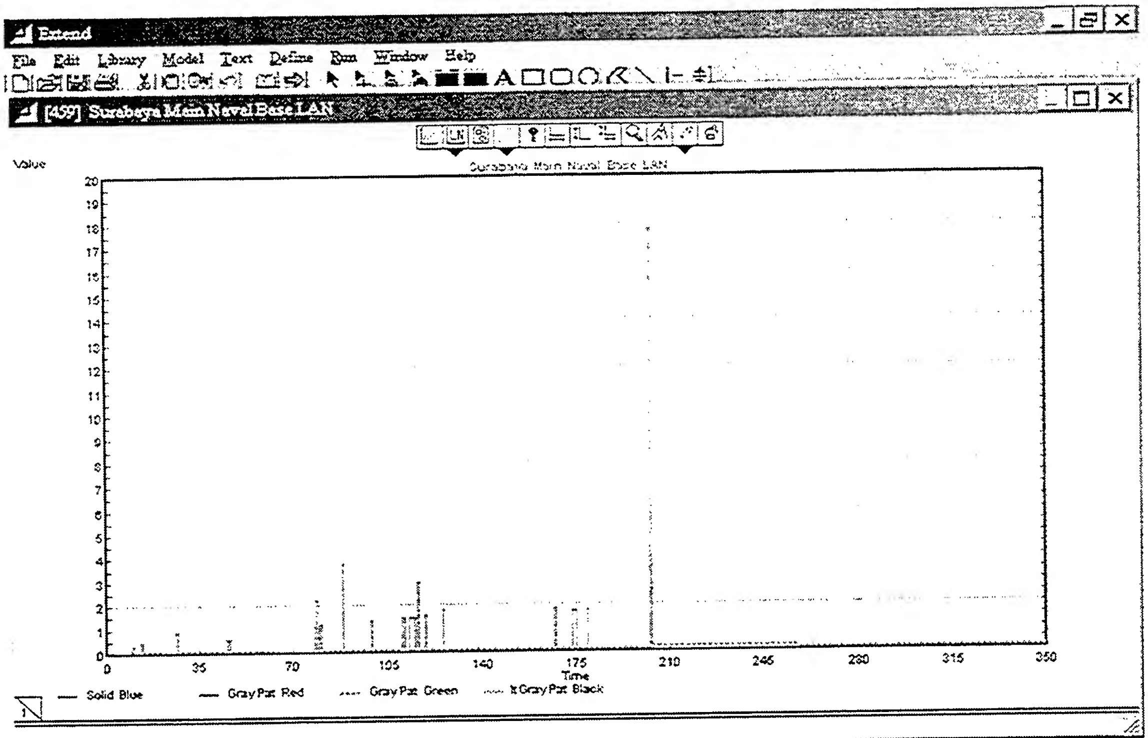
Extend

File Edit Library Model Text Define Run Window Help

[2832] Jayapura main naval base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
3906	347.12624896257	170.65377259467			204.34739235922	42.988390657772		
3907	347.12624896257	157.72423587841			204.34739235922	42.988437795618		
3908	347.12624896257	146.93499916442			204.34739235922	43.07646165713		
3909	347.12624896257	15.378242277679			204.34739235922	43.102617634329		
3910	347.12624896257	249.31666074854			204.34739235922	43.080536375295		
3911	347.12624896257	222.85086987085			204.34739235922	43.058477728917		
3912	347.12624896257	29.162540388287			204.34739235922	43.036441660479		
3913	347.12624896257	15.29219007904			204.34739235922	43.014428135333		
3914	347.12624896257	0.1204750138713			204.34739235922	42.992437118904		
3915	347.12624896257	15.007315123648			204.34739235922	42.970468576687		
3916	347.12624896257	14.85856986717			204.34739235922	42.948522474247		
3917	347.12624896257	0.1106083539441			204.34739235922	42.926598777221		
3918	347.12624896257	59.385903928077			204.34739235922	42.904697461314		
3919	347.12624896257	4.66000000e-005			204.34739235922	42.90469747509		
3920	348.85187746286	15.276557094722			204.34739235922	42.882818486086		
3921	348.85187746286	29.295389922175			209.54021495515	42.937920887972		
3922	348.85187746286	59.536951381898			209.54021495515	42.941859998597		
3923	348.85187746286	198.18005128698			209.54021495515	42.943097755281		
3924	348.85187746286	60.193651673518			209.54021495515	43.020733261794		
3925	348.85187746286	15.492749969358			209.54021495515	43.121255626138		
3926	348.85187746286	15.808819015901			209.54021495515	43.1508162374 6		
3927	348.85187746286	97.785985857833			209.54021495515	43.151615259782		
3928	348.85187746286	15.108130579809			209.54021495515	43.152678473258		
3929	348.85187746286	256.82352524679			209.54021495515	43.155643830931		
3930	348.85187746286	0.3190670491306			209.54021495515	43.208137380532		
3931	348.85187746286	14.943254707709			209.54021495515	43.212090588609		
3932	348.85187746286	97.873346390413			209.54021495515	43.219264110596		
3933	348.85187746286	0.4755885955143			209.54021495515	43.246773724119		
3934	348.85187746286	107.19559271304			209.54021495515	43.248776265212		
3935	348.85187746286	63.480170930961			209.54021495515	43.322222174859		
3936	348.85187746286	109.34932479994			209.54021495515	43.351480463196		
3937	348.85187746286	0.3860263432347			209.54021495515	43.352414668258		
3938	348.85187746286	146.58060510934			209.54021495515	43.44330144443		
3939	348.85187746286	246.31582465785			209.54021495515	43.475099583644		
3940	348.85187746286	4.66000000e-005			209.54021495515	43.508844565631		
3941	350	4.66000000e-005			209.54021495515	43.512594803706		
3942					209.54021495516	43.563943847864		

Run 2, Data Delay within the 6th LAN



Run 3, The 1st LAN, Using Simulation Set Up 350, Mean 1 sec, T1 Line 1.544 Mbps

Extend

File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
0	0.0002112	0.0002112			0.0002112	0.0002112		
1	0.0112191333333	0.0112191333333			0.0112191333333	0.0114003333333		
2	1.5341257666667	0.0035131243906			0.0112191333333	0.0057151666667		
3	1.9775073518102	7.04000000e-005			1.5341257666667	0.007471728862		
4	2.3223256	0.0580811496371			1.5341257666667	0.0049811525746		
5	2.3468361761833	0.0031993566667			1.9775073518102	0.0050046192413		
6	3.1511577510258	7.04000000e-005			1.9775073518102	0.003753464431		
7	3.8954356492079	0.0031993566667			2.3223256	0.0207737518403		
8	4.0516261943542	7.04000000e-005			2.3223256	0.0165190014722		
9	5.6931325698788	0.0040101333333			2.3468361761833	0.0172589748056		
10	6.485332952895	7.04000000e-005			2.3468361761833	0.0140824790046		
11	7.6211180666655	0.0040829838752			3.1511577510258	0.0143942123379		
12	7.7809307647239	7.04000000e-005			3.1511577510258	0.0123378962897		
13	9.5994710333333	0.0040443990035			3.1985220514609	0.0123479534325		
14	9.8810744	0.2581476376819			3.1985220514609	0.0108044692535		
15	10.1300751481444	0.0040101333333			3.8954356492079	0.0112044425868		
16	11.189917390946	0.0023896			3.8954356492079	0.0092695046216		
17	12.0928649760933	7.04000000e-005			4.0516261943542	0.0099873267408		
18	13.1087273866667	0.0035251428502			4.0516261943542	0.0089706940694		
19	13.4741359333334	0.4187472122898			5.6931325698788	0.0093716074023		
20	13.4951285011139	7.04000000e-005			5.6931325698788	0.0085196430934		
21	17.3211591802046	0.0105288503719			6.485332952895	0.0085260430934		
22	17.5456498965654	0.0107494029275			6.485332952895	0.0078156395023		
23	18.3788098663207	0.0752347546546			6.6153466897846	0.007821405169		
24	20.780240554704	0.0023896			6.6153466897846	0.0072197595406		
25	21.515629383203	9.65224735e-005			7.6211180666655	0.0075338352233		
26	24.0117487536812	7.04000000e-005			7.6211180666655	0.0069957041359		
27	24.347408037825	0.0023896			7.7809307647239	0.0070007327073		
28	26.572743463208	0.8704130404116			7.7809307647239	0.0065340171935		
29	26.7346317424	7.04000000e-005			8.484771481672	0.0065387105269		
30	27.249680728446	0.0031993566667			8.484771481672	0.006130041189		
31	28.499390516005	0.0023896			8.8773248566576	0.006134441189		
32	28.603467098052	7.04000000e-005			8.8773248566576	0.0057735915413		
33	31.277154784173	0.0179823339173			9.5994710333333	0.0060114974651		
34	31.947873079558	7.04000000e-005			9.5994710333333	0.0058775253837		

Run 3, Data Delay within the 1st LAN

Extend

File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

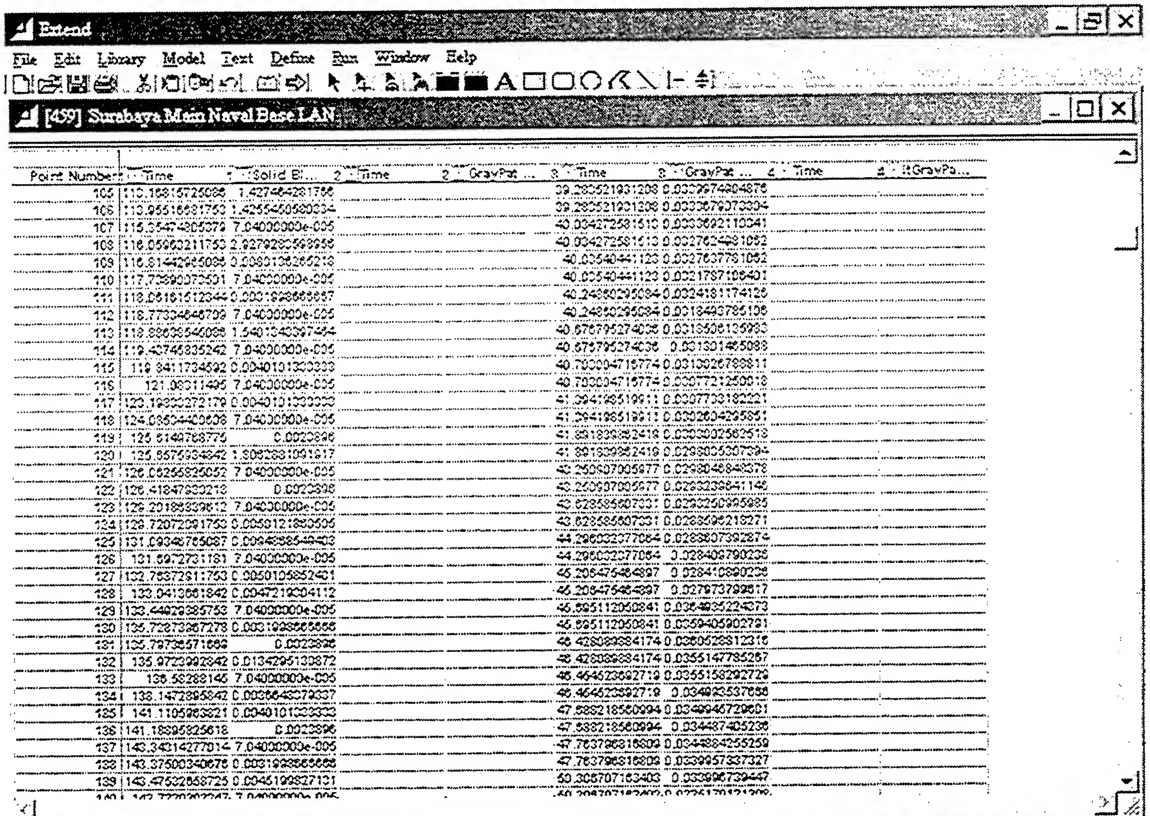
Point Numbers	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : tGravPa...
35	35.4686483820699	0.00319986666667			9.8810744	0.020074616366		
36	36.461943100546	7.04000000e-005			9.8810744	0.0190180576099		
37	38.05330355084	0.0095344698767			10.130075146144	0.019229117259		
38	38.529827632448	0.0023896			10.130075146144	0.0182678613951		
39	39.283521931208	7.04000000e-005			11.189917390946	0.0182871413961		
40	40.24860295094	0.0134087792628			11.189917390946	0.0175115632344		
41	40.876795274036	7.04000000e-005			12.093854976098	0.0175149156153		
42	41.381839862419	0.0023896			12.093854976098	0.0167187833873		
43	43.250907005977	7.04000000e-005			12.16382345356	0.0167219833873		
44	45.895112050841	0.5537819833181			12.16382345356	0.0159949403444		
45	46.428089984174	0.0874112028655			12.467443467416	0.015988001214		
46	46.464523692719	7.04000000e-005			12.467443467416	0.0153314178301		
47	52.160968280771	0.00319986666667			13.106727366667	0.0154782987822		
48	55.29839849582	7.04000000e-005			13.106727366667	0.0148591668309		
49	55.814485283983	0.0023896			13.474135933334	0.0316090553269		
50	55.883788112119	7.04000000e-005			13.474135933334	0.0309933224297		
51	58.755985295174	0.0023896			13.495126501139	0.030398030122		
52	59.05780482103	0.0040101333333			13.495126501139	0.0292702512286		
53	59.40353370493	7.04000000e-005			15.098898549061	0.029272853636		
54	64.240806817509	0.0356512053314			15.098898549061	0.029227399399		
55	64.355582780561	7.04000000e-005			17.321159180248	0.028607081198		
56	68.254142460844	0.006753681002			17.321159180248	0.0278205528808		
57	69.995034705248	0.00319986666667			17.546649869654	0.0279812219473		
58	70.863220577851	7.04000000e-005			17.546649869654	0.0270581812157		
59	71.808740030421	0.00319986666667			18.378809563207	0.0285850063675		
60	72.122433055462	0.0023896			18.378809563207	0.028122642266		
61	72.140944617512	0.0079392462054			20.760240554704	0.0288393480976		
62	72.998381484179	0.0078681222354			20.760240554704	0.0277928059695		
63	74.101587751803	7.04000000e-005			21.515629363208	0.027795825422		
64	74.358876060661	0.0023896			21.515629363208	0.0269535276819		
65	74.520429250848	0.0068973738548			24.011746753612	0.0269556610153		
66	74.625885317202	7.04000000e-005			24.011746753612	0.026182847466		
67	75.801544731851	0.0023896			24.347408037825	0.0262331298089		
68	75.952297918009	7.04000000e-005			24.347408037825	0.0254838118144		
69	76.467924352897	0.0023896			26.572743463208	0.0503525558262		

Extend

File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

Point Numbers	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : tGravPa...
70	78.130545384181	1.1036199887253			26.572743463208	0.0489538737199		
71	78.507518015606	0.0023896			26.7346917424	0.0489558292764		
72	78.840192577651	7.04000000e-005			26.7346917424	0.0478326987546		
73	78.847642317514	2.1508992079077			27.077714719793	0.0478346014672		
74	79.500177947304	7.04000000e-005			27.077714719793	0.0463810593136		
75	80.137318717515	1.144652851458			27.249680728449	0.0464652663311		
76	80.689032457764	7.04000000e-005			27.249680728449	0.0452738492467		
77	82.351514162035	0.0023896			28.499690518005	0.0463351210406		
78	83.098884230423	7.04000000e-005			28.499690518005	0.0442017430146		
79	86.60721929341	0.0023896			28.60346708058	0.0442035030146		
80	87.020612520603	0.00319986666667			28.60346708058	0.0431253687947		
81	87.021259264696	7.04000000e-005			29.292023238028	0.0431270858679		
82	88.595138784185	3.7718808157588			29.292023238028	0.0421002504901		
83	88.781478263875	0.0040101333333			29.759702879233	0.0421019266805		
84	89.237964732327	7.04000000e-005			29.759702879233	0.0411228121066		
85	92.534866912719	0.0023896			31.277154784173	0.0415407337093		
86	93.593916050635	7.04000000e-005			31.277154784173	0.0405965968083		
87	94.782227884198	0.0044041927326			31.947873379566	0.0405981968068		
88	95.27365661752	0.0084656097035			31.947873379566	0.0398960146555		
89	95.56581036724	7.04000000e-005			33.025002402588	0.0396975791		
90	96.032713998644	0.00319986666667			33.025002402588	0.03883468825		
91	96.685023989265	7.04000000e-005			34.37321592708	0.0388351186846		
92	98.832046317522	1.3097697518847			34.37321592708	0.0380098132872		
93	99.259150259213	0.00319986666667			34.769796055086	0.0380113161596		
94	100.02431690376	0.0023896			34.769796055086	0.0372194137396		
95	101.00490020043	7.04000000e-005			35.468648820699	0.0372880776285		
96	101.03473547501	0.00319986666667			35.468648820699	0.0365251372687		
97	104.43909416103	0.0023896			36.461943100546	0.0365265740034		
98	105.26438051731	0.00319986666667			36.461943100546	0.0357980425223		
99	105.65377240567	7.04000000e-005			37.289215852017	0.0357974605223		
100	110.09256887071	0.0023896			37.289215852017	0.0350955397287		
101	110.40219878419	1.3990388061433			38.05330355084	0.0352824801146		
102	111.5778324938	7.04000000e-005			38.05330355084	0.0346039806893		
103	112.67082641817	0.0040101333333			38.529827632448	0.0346489346254		
104	112.93637701066	7.04000000e-005			38.529827632448	0.0339951821857		

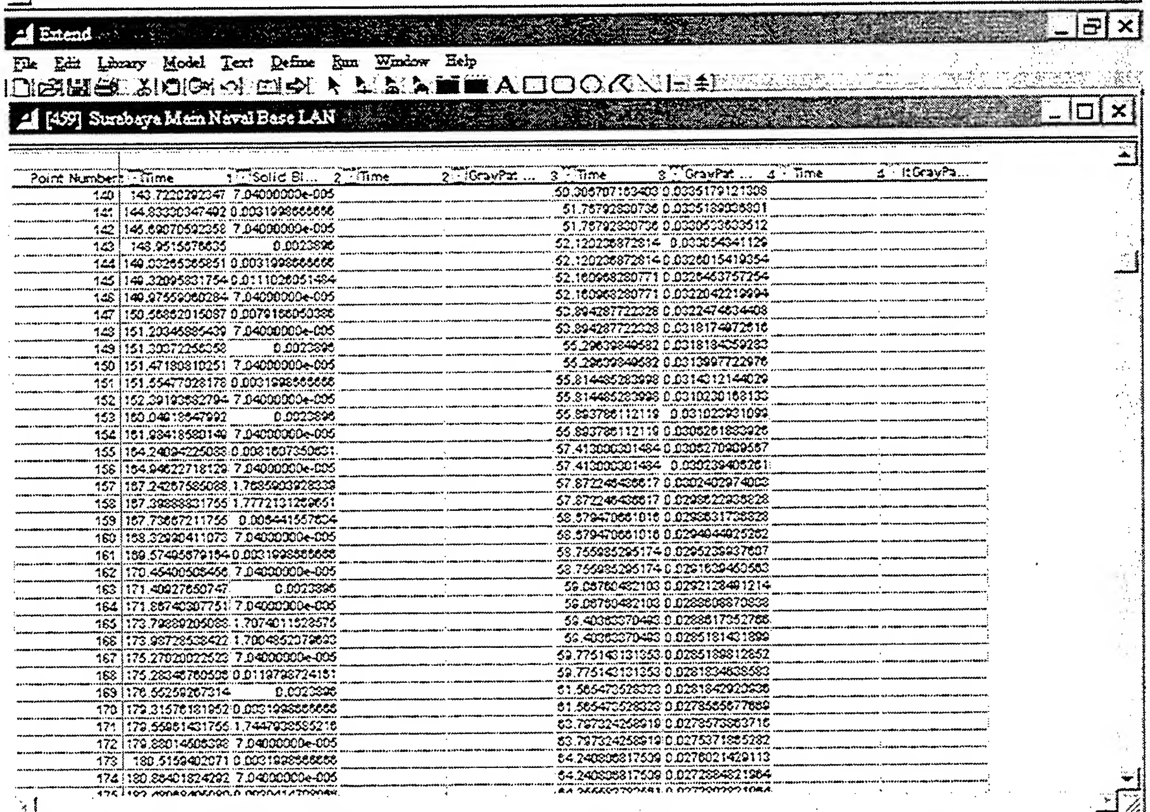


Extend

File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

Point Number	: Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
105	110.16815725086	1.427464281706			39.280521931208	0.0332974804876		
106	113.95516631753	1.4255460580304			39.280521931308	0.0333679073304		
107	115.35474805379	7.04000000e-005			40.034272581510	0.0333692110041		
108	116.05963211753	2.9279280598956			40.034272581510	0.0327624981052		
109	116.81442965086	0.0090136265218			40.05540441123	0.0327637781052		
110	117.73690073501	7.04000000e-005			40.05540441123	0.0321787108401		
111	118.06181512344	0.0031998666667			40.24850295084	0.0324181174126		
112	118.77304646709	7.04000000e-005			40.24850295084	0.0318490785108		
113	118.88639546068	1.5401340397464			40.676795274036	0.0318506135963		
114	119.40745835242	7.04000000e-005			40.676795274036	0.031301465088		
115	119.8411734592	0.0040101300333			40.700004715774	0.0313026788811		
116	121.08011495	7.04000000e-005			40.700004715774	0.0307721250018		
117	123.19830272179	0.0040101333333			41.394198519911	0.0307730182221		
118	124.08504400608	7.04000000e-005			41.394198519911	0.0302604295851		
119	125.5149768775	0.0023896			41.891839852419	0.0303002582518		
120	125.85760934842	1.3062881091817			41.891839852419	0.0298005307294		
121	126.08256825052	7.04000000e-005			43.250907005977	0.0298048848378		
122	126.41847900218	0.0023898			43.250907005977	0.0293238641146		
123	128.20188339612	7.04000000e-005			43.628585607331	0.0293250995985		
124	128.72072091753	0.0050121860606			43.628585607331	0.0288698218271		
125	131.09348765087	0.0094858649403			44.296032077064	0.0288607392874		
126	131.5972731181	7.04000000e-005			44.296032077064	0.028409790236		
127	132.78372911753	0.0050105852401			46.206475464897	0.028410890236		
128	133.0413661842	0.0047219004112			46.206475464897	0.027973789817		
129	133.44029385753	7.04000000e-005			46.595112050841	0.0364935224373		
130	135.72873867278	0.0031998666666			46.595112050841	0.0359405902791		
131	135.79738571669	0.0023896			48.428089684174	0.0360528812316		
132	135.9723992842	0.0134295130872			48.428089684174	0.0355147785267		
133	136.59288146	7.04000000e-005			48.464523692719	0.0355158292729		
134	138.1472895842	0.0036643079337			48.464523692719	0.034993537658		
135	141.1105963821	0.0040101033333			47.588218560994	0.0349946729601		
136	141.18895825618	0.0023896			47.588218560994	0.034487405236		
137	143.34314277014	7.04000000e-005			47.763796816809	0.0344884255259		
138	143.37500340678	0.0031998666668			47.763796816809	0.0339957337327		
139	143.47532858725	0.0046199827131			50.305707163403	0.033896739447		



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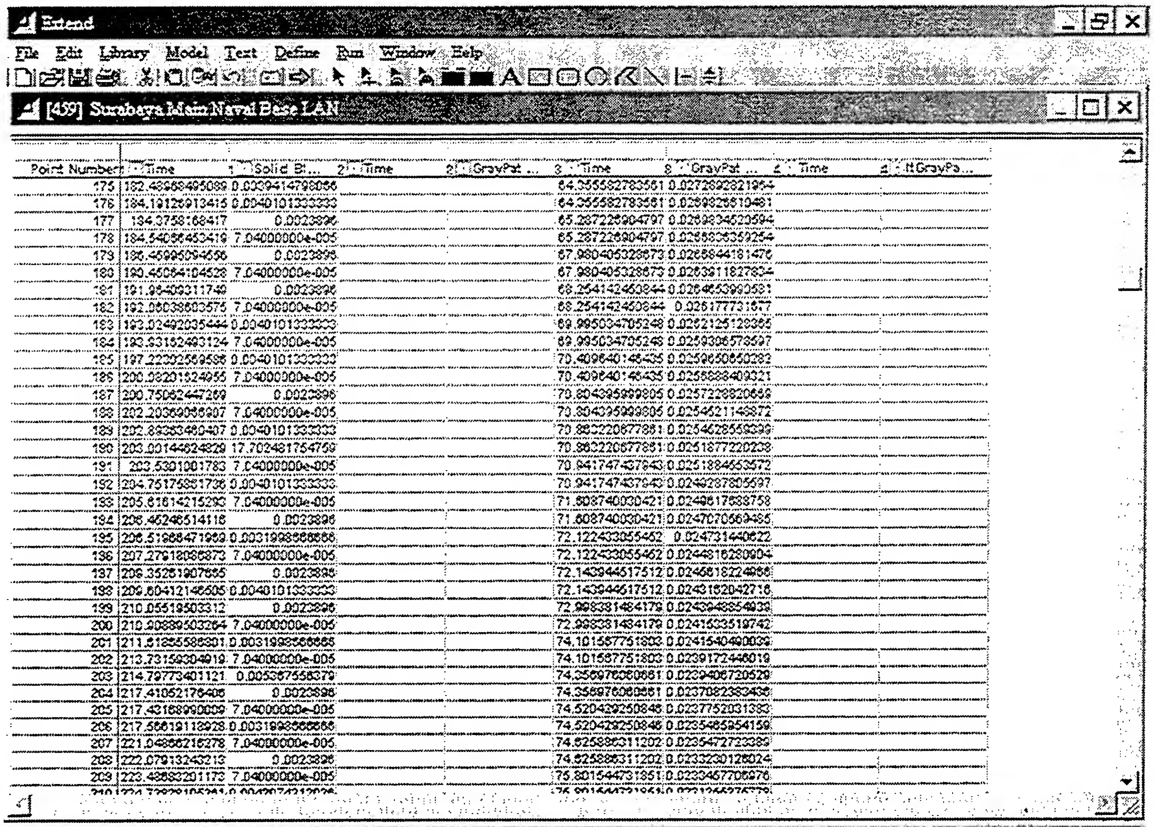
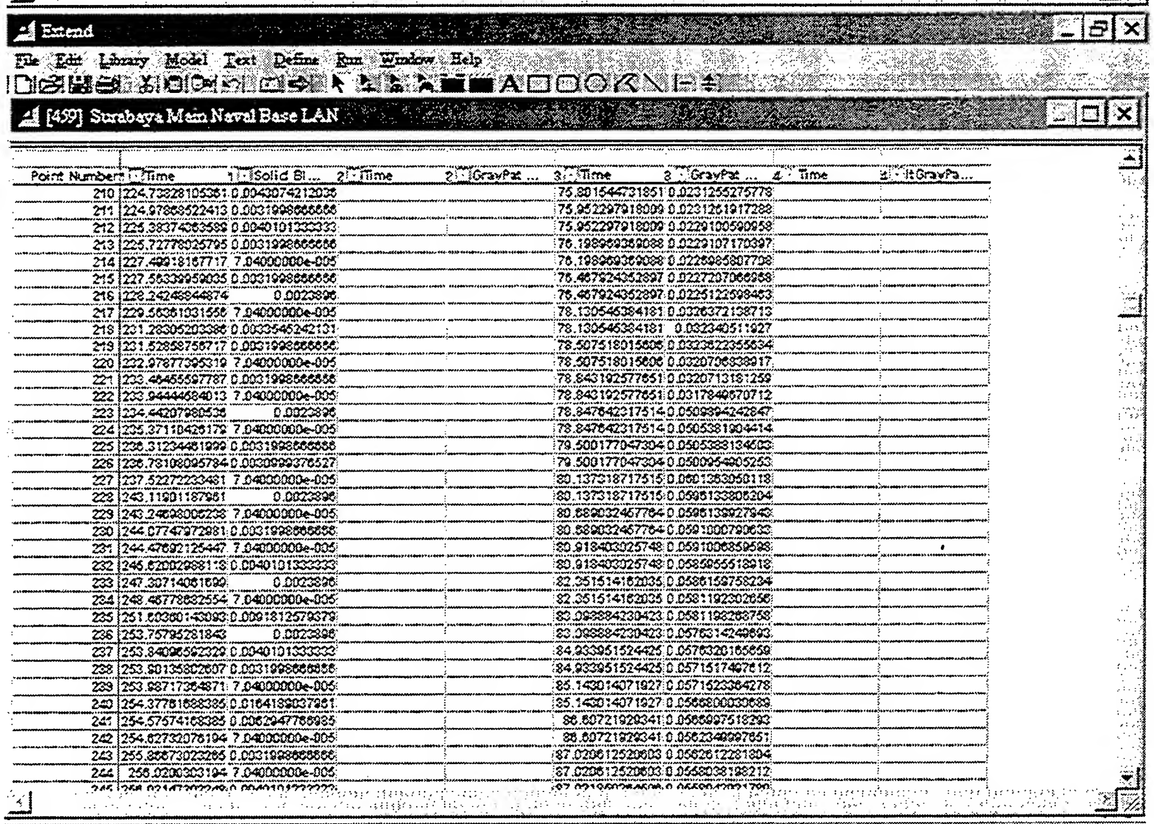
File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

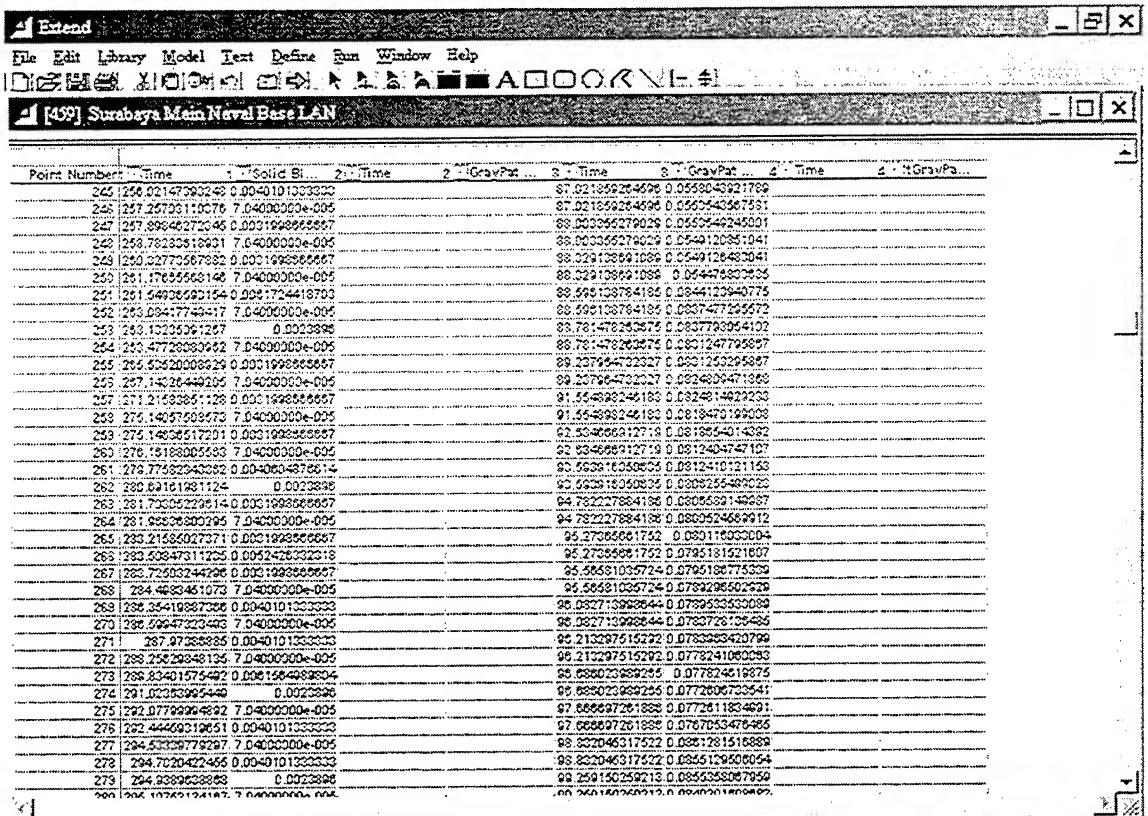
Point Number	: Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
140	143.7220292347	7.04000000e-005			50.305707163403	0.0335179121308		
141	144.83330347492	0.0031998666666			51.75792830736	0.0335189306801		
142	145.69070592358	7.04000000e-005			51.75792830736	0.0330503603512		
143	148.9515676635	0.0023896			52.120236872814	0.033054341129		
144	149.03265365851	0.0031998666666			52.120236872814	0.0326015419354		
145	149.32095831754	0.0111026051484			52.160968280771	0.0326463757254		
146	149.97559060284	7.04000000e-005			52.160968280771	0.0322042219994		
147	150.56862015087	0.0079166060336			53.894287722328	0.0322474834408		
148	151.20346885439	7.04000000e-005			53.894287722328	0.0318174972816		
149	151.30072256358	0.0023896			55.29639849582	0.0318184059283		
150	151.47180810251	7.04000000e-005			55.29639849582	0.0313997722976		
151	151.55477028178	0.0031998666666			55.814485283998	0.0314012144029		
152	152.39193582794	7.04000000e-005			55.814485283998	0.0310230168133		
153	160.04618647992	0.0023896			55.893786112119	0.031023931099		
154	161.93418580149	7.04000000e-005			55.893786112119	0.0306261883926		
155	164.24094225038	0.0081607350631			57.413000301484	0.0306270909567		
156	164.94622718129	7.04000000e-005			57.413000301484	0.030239405261		
157	167.24267585088	1.7685903928339			57.872246436617	0.0302402974003		
158	167.39888831765	1.7772131269651			57.872246436617	0.0298822935828		
159	167.73667211756	0.005441557604			58.579470661018	0.0298831738828		
160	168.32980411073	7.04000000e-005			58.579470661018	0.0294044925262		
161	169.57495879154	0.0031998666666			58.755985295174	0.0295239937607		
162	170.45400508456	7.04000000e-005			58.755985295174	0.0291639460583		
163	171.40927650747	0.0023896			59.08760482103	0.0292128491214		
164	171.88740307751	7.04000000e-005			59.08760482103	0.0288608870938		
165	173.79889205088	1.7074011528576			59.40383070483	0.0288617352766		
166	173.98728538422	1.7004852079623			59.40383070483	0.0285181431899		
167	175.27020022523	7.04000000e-005			59.775143131353	0.0285188812652		
168	175.28348760508	0.0119798724151			59.775143131353	0.0281834638583		
169	176.56259267314	0.0023896			61.565473528323	0.0281842920936		
170	179.31576181952	0.0031998666666			61.565473528323	0.0278565677689		
171	179.55981431755	1.7447938595218			63.797324258919	0.0278573983716		
172	179.88014606398	7.04000000e-005			63.797324258919	0.0275371885282		
173	180.5159402071	0.0031998666666			64.240806817509	0.0276021429113		
174	180.86401824292	7.04000000e-005			64.240806817509	0.0272884821964		



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
175	182.48969495089	0.0039414798086			64.355582783561	0.0272892821954		
176	184.19126913415	0.0040101333333			64.355582783561	0.0269325810481		
177	184.3758168417	0.0023896			65.287226904797	0.0269834520594		
178	184.54056453419	7.04000000e-005			65.287226904797	0.0265936359254		
179	186.45995094656	0.0023896			67.980405328873	0.0268844181476		
180	190.46064104528	7.04000000e-005			67.980405328873	0.0263911827834		
181	191.98409311749	0.0023896			68.254142460844	0.0264653990581		
182	192.08038603575	7.04000000e-005			68.254142460844	0.02617773167		
183	193.02492035444	0.0040101333333			69.995034705248	0.0262125129365		
184	193.63152493124	7.04000000e-005			69.995034705249	0.0259306578597		
185	197.22202569598	0.0040101333333			70.409640146435	0.0259650650282		
186	200.08201524955	7.04000000e-005			70.409640146435	0.0256888409321		
187	200.75062447269	0.0023896			70.804395999805	0.0257228820668		
188	202.20369086907	7.04000000e-005			70.804395999805	0.0254621148872		
189	202.89383480407	0.0040101333333			70.863220877881	0.0254628558399		
190	203.00144624829	17.702481754759			70.863220877881	0.0251877220238		
191	203.5301081783	7.04000000e-005			70.941747437843	0.0251884653572		
192	204.75175881736	0.0040101333333			70.941747437843	0.0249287805597		
193	205.61614215293	7.04000000e-005			71.608740030421	0.0248617588758		
194	206.46248514118	0.0023896			71.608740030421	0.0247070569486		
195	206.51988471969	0.0031998666666			72.122433055462	0.024731440622		
196	207.27918086873	7.04000000e-005			72.122433055462	0.0244816280904		
197	209.35251907655	0.0023896			72.143944617512	0.0246818224968		
198	209.60412146505	0.0040101333333			72.143944617512	0.0243152042716		
199	210.05519503312	0.0023896			72.998381484179	0.0243948854938		
200	210.90889503264	7.04000000e-005			72.998381484179	0.0241633519742		
201	211.61255586301	0.0031998666666			74.101557751803	0.0241540490039		
202	213.73159304919	7.04000000e-005			74.101557751803	0.0239172446019		
203	214.79773401121	0.005367556379			74.356976060661	0.0239408720529		
204	217.41052176406	0.0023896			74.356976060661	0.0237082383436		
205	217.43168990009	7.04000000e-005			74.520429250846	0.0237752031383		
206	217.56619112928	0.0031998666666			74.520429250846	0.0235485954159		
207	221.04866216278	7.04000000e-005			74.625886311202	0.0235472723389		
208	222.07913243213	0.0023896			74.625886311202	0.0233230126024		
209	223.48883201173	7.04000000e-005			75.801544731851	0.0233467706976		



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
210	224.73828105361	0.0043074212036			75.801544731851	0.0231255275778		
211	224.97868522413	0.0031998666666			75.952297918009	0.0231261917288		
212	225.38374063589	0.0040101333333			75.952297918009	0.0229100590958		
213	225.72778025795	0.0031998666666			76.198969369088	0.0229107170397		
214	227.49918167717	7.04000000e-005			76.198969369088	0.0226985807798		
215	227.56339959035	0.0031998666666			76.467924352897	0.0227207066958		
216	228.24246844874	0.0023896			76.467924352897	0.0225122598463		
217	229.56361031556	7.04000000e-005			78.130546384181	0.0326372138713		
218	231.28305203386	0.0033545242131			78.130546384181	0.032340511927		
219	231.52858756717	0.0031998666666			78.507518015606	0.0323822355634		
220	232.97877395319	7.04000000e-005			78.507518015606	0.0320706838917		
221	233.46455597787	0.0031998666666			78.843192577651	0.0320713181259		
222	233.94444684013	7.04000000e-005			78.843192577651	0.0317849670712		
223	234.44207980536	0.0023896			78.847642317514	0.0509894242847		
224	235.37118426179	7.04000000e-005			78.847642317514	0.0505381904414		
225	236.31234481999	0.0031998666666			79.500177047304	0.0505383134603		
226	236.78108095784	0.0030999376527			79.500177047304	0.0500954805253		
227	237.52272233481	7.04000000e-005			80.137318717515	0.0601363050118		
228	243.11801187961	0.0023896			80.137318717515	0.0596133808204		
229	243.24698006238	7.04000000e-005			80.889032457764	0.0596139927943		
230	244.07747972981	0.0031998666666			80.889032457764	0.0591000790633		
231	244.47692125447	7.04000000e-005			80.918403025748	0.0591006859598		
232	246.62002988113	0.0040101333333			80.918403025748	0.0585955518918		
233	247.30714061690	0.0023896			82.351514162035	0.0586159758234		
234	248.48778832554	7.04000000e-005			82.351514162035	0.0581192302656		
235	251.60360143093	0.0091812579379			83.098884230423	0.0581198268758		
236	253.75795281843	0.0023896			83.098884230423	0.0576314249693		
237	253.84096592329	0.0040101333333			84.933951524425	0.0576320165659		
238	253.90135802607	0.0031998666666			84.933951524425	0.0571517497612		
239	253.98717364871	7.04000000e-005			85.143014071927	0.0571523384278		
240	254.37781688386	0.0164139037961			85.143014071927	0.0566800030689		
241	254.57574168385	0.0062947786935			86.60721929341	0.0566997518293		
242	254.62732076194	7.04000000e-005			86.60721929341	0.0562349997651		
243	255.85673023265	0.0031998666666			87.020612520603	0.0562612281304		
244	256.0200303194	7.04000000e-005			87.020612520603	0.0558038198212		

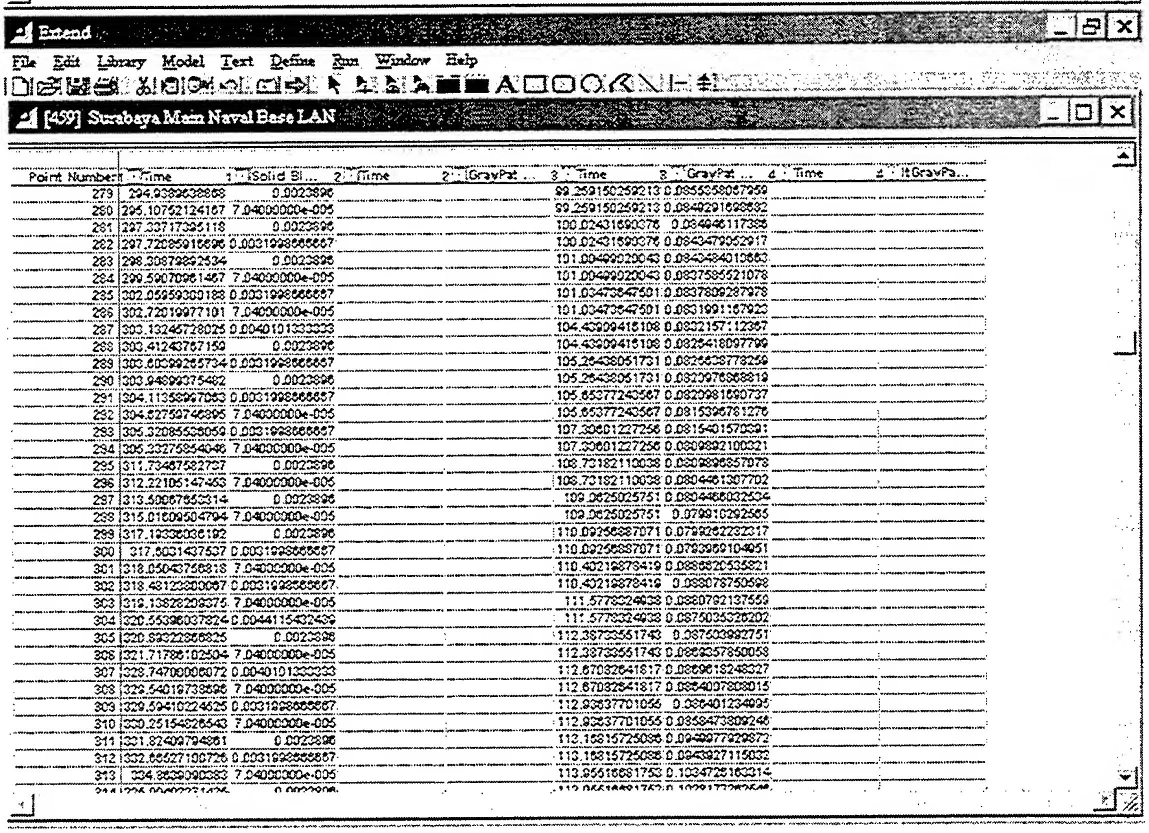


Extend

File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : GrayPa...
245	256.02147393248	0.0040101333333			87.021859284696	0.0558043921789		
246	257.25703110076	7.04000000e-005			87.021859284696	0.0560543567561		
247	257.89948272046	0.0031998666667			88.003356279029	0.0550549245001		
248	258.78283518931	7.04000000e-005			88.003356279029	0.0549120351041		
249	260.32773567382	0.0031998666667			88.329138691089	0.0549128483041		
250	261.17655568146	7.04000000e-005			88.329138691089	0.0544768303635		
251	261.54936590154	0.0061724418703			88.595138784185	0.0844120940775		
252	263.08417749417	7.04000000e-005			88.595138784185	0.0837477295672		
253	263.1023591267	0.0023896			88.781478263875	0.0837793054102		
254	263.47728080982	7.04000000e-005			88.781478263875	0.0831247795857		
255	265.52520008929	0.0031998666667			89.237964732327	0.0831253295867		
256	267.14026449205	7.04000000e-005			89.237964732327	0.0824809471368		
257	271.21583851128	0.0031998666667			91.554898246183	0.0824814829233		
258	275.14057508573	7.04000000e-005			91.554898246183	0.0818470199008		
259	275.14838517201	0.0031998666667			92.534666912719	0.0818654014382		
260	276.15188005583	7.04000000e-005			92.534666912719	0.0812404747107		
261	278.77582343382	0.0040604378614			93.593916050835	0.0812410121153		
262	280.6816191124	0.0023898			93.593916050835	0.0808255489023		
263	281.70305229814	0.0031998666667			94.782227884186	0.0805659149987		
264	281.95536800295	7.04000000e-005			94.782227884186	0.0800524689912		
265	283.21586027371	0.0031998666667			95.27365661752	0.080116033004		
266	283.50847311205	0.0052426332318			95.27365661752	0.0795181521607		
267	283.72503244296	0.0031998666667			95.565810357240	0.0795186775339		
268	284.4983461073	7.04000000e-005			95.565810357240	0.0789295502929		
269	286.35419887386	0.0040101333333			96.082713998644	0.0789533530089		
270	286.59947323483	7.04000000e-005			96.082713998644	0.0783728135485		
271	287.97385885	0.0040101333333			96.213297515292	0.0783983420799		
272	288.25629848135	7.04000000e-005			96.213297515292	0.0778241060053		
273	289.83401575492	0.0061564989804			96.686023989255	0.077824619875		
274	291.02353995449	0.0023898			96.686023989255	0.0772806733541		
275	292.07799924892	7.04000000e-005			97.666897261888	0.0772611834691		
276	292.44469319651	0.0040101333333			97.666897261888	0.0767053476485		
277	294.53339779297	7.04000000e-005			98.832046317522	0.0861281516889		
278	294.7020422465	0.0040101333333			98.832046317522	0.0855129506054		
279	294.9389638863	0.0023898			99.259150259213	0.0855358067959		

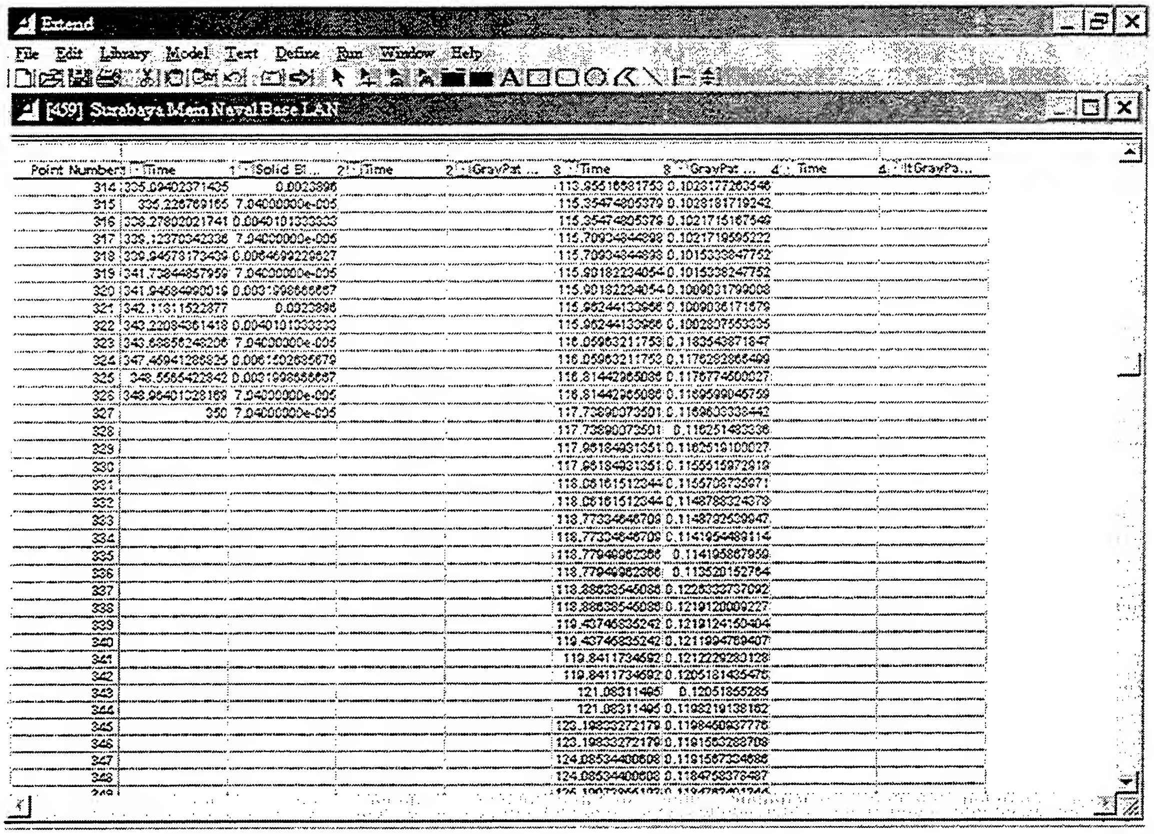


Extend

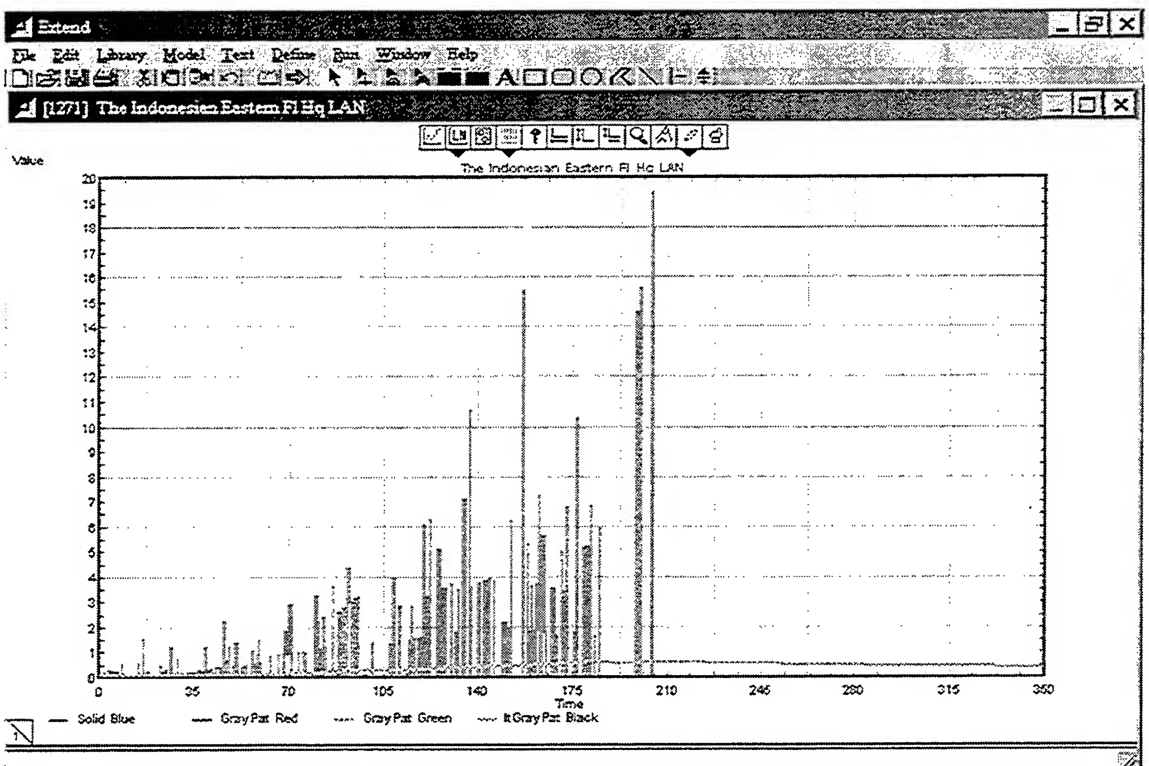
File Edit Library Model Text Define Run Window Help

[459] Surabaya Main Naval Base LAN

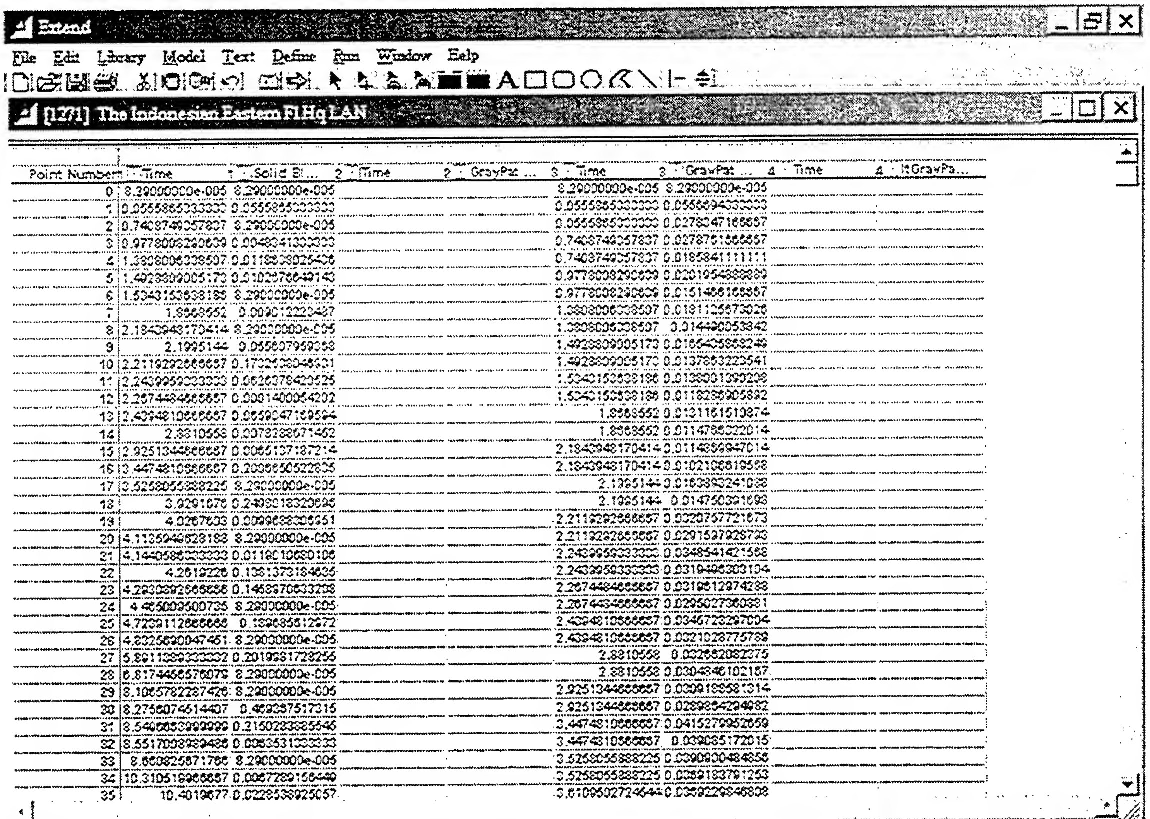
Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : GrayPa...
279	294.9389638868	0.0023896			99.259150259213	0.0855358067959		
280	295.10752124167	7.04000000e-005			99.259150259213	0.0849291698632		
281	297.33717395118	0.0023896			100.02431690378	0.084946117385		
282	297.72085916696	0.0031998666667			100.02431690378	0.0843479052917		
283	298.30879892534	0.0023896			101.00499020043	0.0843484010663		
284	299.59070981467	7.04000000e-005			101.00499020043	0.0837586521078		
285	302.05959300188	0.0031998666667			101.03473647501	0.0837809287978		
286	302.72019977101	7.04000000e-005			101.03473647501	0.0831991167923		
287	303.13246728025	0.0040101333333			104.43909415108	0.0832157112367		
288	303.41243767159	0.0023896			104.43909415108	0.0826418097799		
289	303.60099265734	0.0031998666667			105.26438051731	0.0826638773259		
290	303.94899375482	0.0023896			105.26438051731	0.0820976968819		
291	304.11358997053	0.0031998666667			105.65377240567	0.0820981690737		
292	304.62759746895	7.04000000e-005			105.65377240567	0.0815396781276		
293	305.32085535059	0.0031998666667			107.30601227256	0.0815401570391		
294	306.33275854046	7.04000000e-005			107.30601227256	0.0809892100321		
295	311.73487582737	0.0023896			108.73182110038	0.0809896857078		
296	312.22105147463	7.04000000e-005			108.73182110038	0.0804461307702		
297	313.50087653314	0.0023896			109.0625025751	0.0804466032504		
298	315.01609504794	7.04000000e-005			109.0625025751	0.079910292565		
299	317.19336036192	0.0023896			110.09256887071	0.0799262232317		
300	317.6031437537	0.0031998666667			110.09256887071	0.0793969104951		
301	318.05043756818	7.04000000e-005			110.40219878419	0.0886820535821		
302	318.48122800067	0.0031998666667			110.40219878419	0.088078750598		
303	319.13828209375	7.04000000e-005			111.5778324938	0.0880792137559		
304	320.55398037324	0.0044115432409			111.5778324938	0.0875035326202		
305	320.89322866825	0.0023896			112.38733551743	0.087503992751		
306	321.71786102504	7.04000000e-005			112.38733551743	0.0869357850058		
307	328.74700006072	0.0040101333333			112.67032641817	0.0869619248327		
308	329.54019738696	7.04000000e-005			112.67032641817	0.0864007808015		
309	329.59410224625	0.0031998666667			112.93637701056	0.086401234095		
310	330.25154826543	7.04000000e-005			112.93637701056	0.0858473809246		
311	331.82409794861	0.0023896			113.16815725096	0.0949977929872		
312	332.66527100726	0.0031998666667			113.16815725096	0.0943927115032		
313	334.3639090383	7.04000000e-005			113.95516681753	0.1034723163314		



Point Number	1 Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ltGrayPa...
314	335.09402371435	0.0023896			113.95516581753	0.1023177263546		
315	336.226769165	7.04000000e-005			115.35474805379	0.1023181719242		
316	338.27802021741	0.0040101333333			115.35474805379	0.1021715167549		
317	339.12370342336	7.04000000e-005			115.70934844898	0.1021719595222		
318	339.94678173439	0.0064699229627			115.70934844898	0.1015333847752		
319	341.73844857959	7.04000000e-005			115.90182234054	0.1015338247752		
320	341.94584990019	0.0031998666667			115.90182234054	0.1009031799008		
321	342.11311522877	0.0023896			115.96244133966	0.1009036171579		
322	343.22084361418	0.0040101333333			115.96244133966	0.1002807553335		
323	343.68856249206	7.04000000e-005			116.05963211753	0.1183543871847		
324	347.46941288825	0.0061502635679			116.05963211753	0.1176292865499		
325	348.5565422842	0.0031998666667			116.81442965086	0.1176774600027		
326	348.96401028169	7.04000000e-005			116.81442965086	0.1169599046759		
327	350	7.04000000e-005			117.73890073501	0.1169603338442		
328					117.73890073501	0.116251483336		
329					117.95184931351	0.1162519100027		
330					117.95184931351	0.1155515972919		
331					118.06161512344	0.1155708735971		
332					118.06161512344	0.1148788324378		
333					118.77334646709	0.1148792509947		
334					118.77334646709	0.1141954489114		
335					118.77949962366	0.114195867959		
336					118.77949962366	0.113520152764		
337					118.88638546086	0.1226333737092		
338					118.88638546086	0.1219120009227		
339					119.43746835242	0.1219124150404		
340					119.43746835242	0.1211994769407		
341					119.8411734692	0.1212229280128		
342					119.8411734692	0.1205181435476		
343					121.08311495	0.12051865285		
344					121.08311495	0.1198219138162		
345					123.19833272179	0.1198460937776		
346					123.19833272179	0.1191563288708		
347					124.08534400608	0.1191567334686		
348					124.08534400608	0.1184758376487		
349					[illegible]	[illegible]		

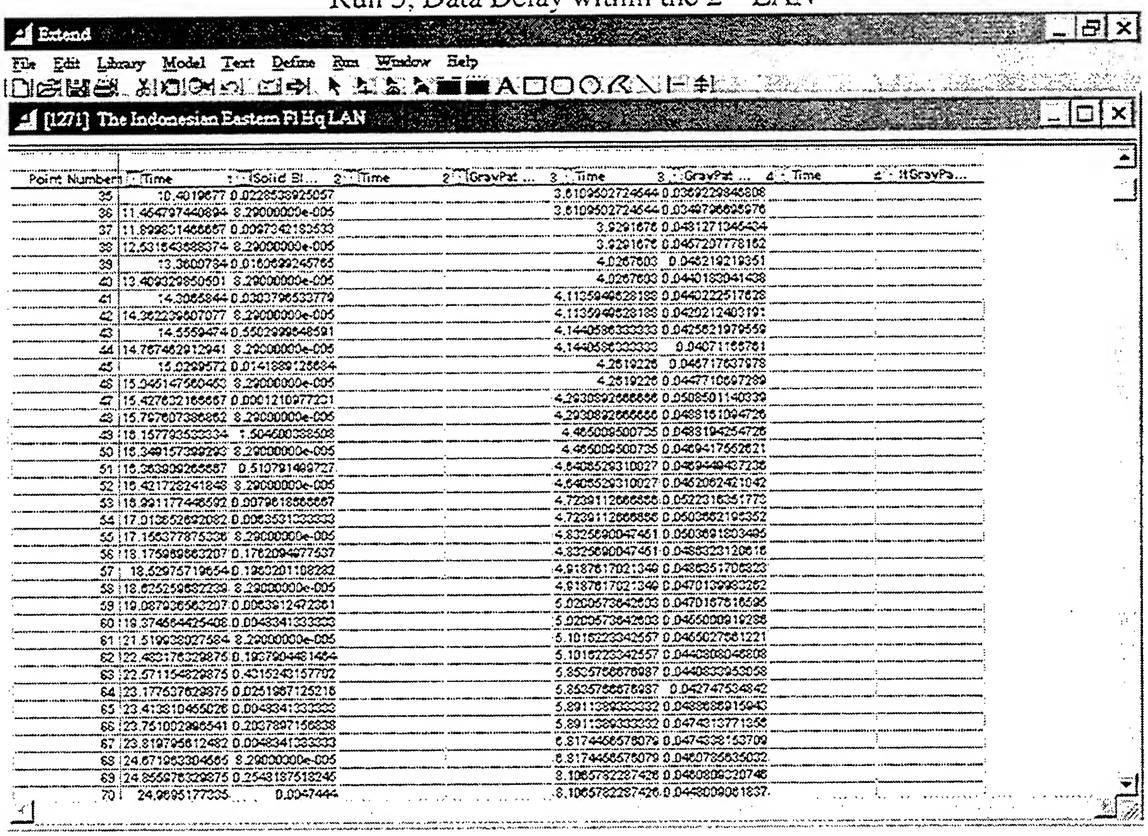


Run 3, The 2nd LAN, Using Simulation Set Up 350, Mean 1 sec, T1 Line 1.544 Mbps



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ItGrayPa...
0	8.29000000e-005	8.29000000e-005			8.29000000e-005	8.29000000e-005		
1	0.0555865033333	0.0555865033333			0.0555865033333	0.0555894033333		
2	0.7408749057837	8.29000000e-005			0.0555865033333	0.0278047166667		
3	0.9778008290639	0.0048341333333			0.7408749057837	0.0278751666667		
4	1.3808006338507	0.0118838025406			0.7408749057837	0.0195841111111		
5	1.4928809005173	0.0102976649143			0.9778008290639	0.0201954888889		
6	1.5340153538186	8.29000000e-005			0.9778008290639	0.0151466166667		
7	1.8568552	0.009012223487			1.3808006338507	0.0181125673028		
8	2.1840948170414	8.29000000e-005			1.3808006338507	0.01449005342		
9	2.1995144	0.055807959358			1.4928809005173	0.0165405869249		
10	2.2119292666667	0.1702628046631			1.4928809005173	0.0137853223541		
11	2.2439959033333	0.0626378420525			1.5340153538186	0.0138001390208		
12	2.2674484666657	0.0001400064202			1.5340153538186	0.0118286905692		
13	2.4094810666667	0.0659047169594			1.8568552	0.0131161510874		
14	2.8810558	0.0073288671462			1.8568552	0.0114786322014		
15	2.9251344666667	0.0065137187214			2.1840948170414	0.0114858947014		
16	3.4474810566667	0.2005650522605			2.1840948170414	0.0102106819568		
17	3.5258055888225	8.29000000e-005			2.1995144	0.0163893241068		
18	3.9291678	0.2493018320696			2.1995144	0.014750391093		
19	4.0267603	0.0089698300651			2.2119292666657	0.0320757721673		
20	4.1135948628183	8.29000000e-005			2.2119292666667	0.0291537926793		
21	4.1440586333333	0.0118010680106			2.2439959333333	0.0348541421568		
22	4.2619226	0.1361373184635			2.2439959333333	0.0319496303104		
23	4.2930892666656	0.1469970633208			2.2674484666667	0.0319612974288		
24	4.465009500735	8.29000000e-005			2.2674434666667	0.0295027360381		
25	4.7239112666666	0.139685512972			2.4094810666657	0.0346723297004		
26	4.8325690047461	8.29000000e-005			2.4094810666667	0.0321028775788		
27	5.8911389333332	0.2019981728256			2.8810558	0.032652082375		
28	6.8174466576079	8.29000000e-005			2.8810558	0.0304846102187		
29	8.1065782287426	8.29000000e-005			2.9251344666667	0.0309189581314		
30	8.2756074614407	0.469387517315			2.9251344666667	0.0289854294982		
31	8.5406653999999	0.2150283385546			3.4474810666657	0.0415279952659		
32	8.5517003989486	0.0083531333333			3.4474810566657	0.039085172015		
33	8.660825871766	8.29000000e-005			3.5258055888225	0.0390900484856		
34	10.3105189666857	0.0067289156449			3.5258055888225	0.0389183791253		
35	10.4019677	0.0228538925057			3.6109502724644	0.0369229846808		

Run 3, Data Delay within the 2nd LAN



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ItGrayPa...
35	10.4019677	0.0228538925057			3.6109502724644	0.0369229846808		
36	11.464797440894	8.29000000e-005			3.6109502724644	0.0349796625976		
37	11.899831466657	0.0097342183533			3.9291678	0.0481271346434		
38	12.531543588374	8.29000000e-005			3.9291678	0.0467207778162		
39	13.3600734	0.0180699245765			4.0267603	0.045219219351		
40	13.409329850501	8.29000000e-005			4.0267603	0.0440183041438		
41	14.3065844	0.0303796533779			4.1135949628188	0.0440222517628		
42	14.362239607077	8.29000000e-005			4.1135949628188	0.0420212403191		
43	14.5559474	0.5502999648591			4.1440586333333	0.0425621979559		
44	14.767462912941	8.29000000e-005			4.1440586333333	0.04071165761		
45	15.0299572	0.0141889125684			4.2619226	0.046717637978		
46	15.345147560463	8.29000000e-005			4.2619226	0.0447710697289		
47	15.427632166667	0.0001210977201			4.2930892666666	0.0508501140339		
48	15.797607386862	8.29000000e-005			4.2930892666666	0.0488151094726		
49	16.157793533334	1.504600338508			4.465009500735	0.0483194254726		
50	16.349157399293	8.29000000e-005			4.465009500735	0.0469417562621		
51	16.363809266667	0.510781469727			4.6405529310027	0.0469449437236		
52	16.421728241848	8.29000000e-005			4.6405529310027	0.0462062421042		
53	16.991177446592	0.0079618566667			4.7239112666656	0.0522318351773		
54	17.013652692082	0.0063531333333			4.7239112666656	0.0503652195352		
55	17.156377875336	8.29000000e-005			4.8325690047461	0.0503691803496		
56	18.175989663207	0.1762094977537			4.8325690047461	0.0486323120616		
57	18.529757196654	0.1960201108282			4.9187617021349	0.0486351706323		
58	18.625259632239	8.29000000e-005			4.9187617021349	0.0470139983262		
59	19.087936563207	0.0063912472361			5.0200573642603	0.0470167816596		
60	19.374664425408	0.0043341333333			5.0200573642603	0.0465000919298		
61	21.519938027584	8.29000000e-005			5.1016223342557	0.0465027681221		
62	22.483176329875	0.1937904481464			5.1016223342557	0.0440308046808		
63	22.571154829875	0.4315243157702			5.8535756676987	0.0440833953058		
64	23.177637628975	0.0251987125216			5.8535756676987	0.042747534842		
65	23.413810465026	0.0043341333333			5.8911389333332	0.0489688915943		
66	23.751002986541	0.2037897156838			5.8911389333332	0.0474313771358		
67	23.819795612482	0.0048341333333			6.8174466576079	0.0474338153709		
68	24.671963304665	8.29000000e-005			6.8174466576079	0.0460736635032		
69	24.855976329875	0.2543187518246			8.1065782287426	0.0460808320748		
70	24.9695177335	0.0047444			8.1065782287426	0.0448009081837		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ltGrayPa...
72	25.390087992478	0.0048341333333			8.2758074514407	0.0562758794575		
73	25.717751425221	8.29000000e-005			8.5498863999999	0.0620872575285		
74	26.199618529875	0.880721300572			8.5498863999999	0.0604533820285		
75	26.328289563208	1.2064171295725			8.5517008989496	0.0608205700478		
76	26.794807915417	8.29000000e-005			8.5517008989496	0.0590861964568		
77	27.683197563209	0.0078479803166			8.560825671758	0.0590653220978		
78	27.888923046588	8.29000000e-005			8.560825671758	0.0575916140454		
79	28.621927263209	0.0083035420742			10.061823013011	0.0575936885454		
80	29.011236029375	0.7099256860278			10.061823013011	0.0561889524833		
81	29.150444617505	0.0160309351903			10.291373278056	0.0561909844345		
82	29.44867831327	8.29000000e-005			10.291373278056	0.0548531008527		
83	29.524131984173	0.0394739428297			10.310519986667	0.05501331613		
84	29.811148446293	8.29000000e-005			10.310519986667	0.0537339386851		
85	30.473313650839	0.1742068472112			10.4019677	0.0542854225573		
86	30.618200061013	8.29000000e-005			10.4019677	0.0530321174862		
87	30.726728484173	0.0142281793452			11.454797440894	0.0530340015901		
88	30.899605417506	0.0087177509612			11.454797440894	0.0518654882215		
89	31.771359401657	8.29000000e-005			11.899831466667	0.0520717841848		
90	32.0158872508 4	0.1257615261137			11.899831466667	0.0509397888765		
91	32.125355709478	0.0252131802042			12.531643588374	0.0509415910504		
92	32.568270275674	8.29000000e-005			12.531643588374	0.048857727411		
93	33.231402317506	0.1464298202335			12.685425135906	0.0488594812403		
94	33.597672117506	0.1407493408938			12.685425135906	0.04882075184		
95	34.033425460084	0.1284939519886			12.785789475307	0.0488224789233		
96	34.060240017506	0.1495374238739			12.785789475307	0.0478261018024		
97	34.213558188549	8.29000000e-005			12.851818886053	0.0478277938392		
98	34.323430109822	0.0083531333333			12.851818886053	0.0468712377864		
99	35.031908060197	0.0048341333333			13.241472965496	0.0468728957864		
100	35.124185460839	0.1557500132722			13.241472965496	0.0469538193788		
101	35.290055788178	8.29000000e-005			13.3600784	0.0462689159391		
102	36.708035460838	0.2356428813512			13.3600784	0.0463791290841		
103	36.878637535675	8.29000000e-005			13.409329850501	0.0463807233249		
104	37.078970584173	0.1892998752391			13.409329850501	0.0446244832622		
105	37.084423130309	8.29000000e-005			13.441833192396	0.0446260474131		
106	37.394923917506	0.1398698357809			13.441833192396	0.0437014909795		
107	37.480102584173	0.2046460662044			14.3065844	0.0442640771532		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ltGrayPa...
108	37.703046165821	8.29000000e-005			14.3065844	0.0434692757504		
109	38.091565460084	0.1978443222658			14.362239607077	0.0434607830231		
110	38.371381926045	8.29000000e-005			14.362239607077	0.042534697612		
111	38.897883384173	1.1662068764606			14.433329890401	0.0426861779692		
112	39.533870584173	0.2542748794407			14.433329890401	0.0419372976539		
113	39.589514002023	8.29000000e-005			14.5559474	0.0515916830023		
114	40.414518817507	0.0403494725048			14.5559474	0.0507021712264		
115	40.910558784173	0.2743556147859			14.767462912941	0.0507036005368		
116	41.010893488146	8.29000000e-005			14.767462912941	0.0498442174768		
117	41.542545460084	0.3068372546317			14.973843316072	0.0498466225616		
118	41.876815350 84	0.012074879168			14.973843316072	0.0490148521855		
119	42.349034931627	8.29000000e-005			15.0299572	0.0492513440633		
120	43.146931317507	0.3989270036119			15.0299572	0.0484439449803		
121	44.825801150841	0.0161058665994			15.046147580463	0.0484463039967		
122	44.892582198721	8.29000000e-005			15.046147580463	0.0475839281258		
123	45.954882984174	0.5759559835686			15.268369154844	0.0476652852228		
124	46.029618946192	8.29000000e-005			15.268369154844	0.0469088737111		
125	46.143395460841	0.5962300436859			15.427632166667	0.0469105958972		
126	46.148812750841	0.0135653567315			15.427632166667	0.0461776178363		
127	46.183435917507	2.2343753087546			15.797607386852	0.0461789131488		
128	46.247546850581	8.29000000e-005			15.797607386852	0.0464684683311		
129	46.640131390791	0.0079618666667			16.157793533334	0.0685146261543		
130	46.772972117508	0.6431260642913			16.157793533334	0.0675750125762		
131	46.923703641355	8.29000000e-005			16.349157399293	0.0675752086368		
132	48.013865460841	1.2097811031222			16.349157399293	0.0665676876124		
133	48.237878644782	8.29000000e-005			16.363909266667	0.0741914213397		
134	49.194633036322	0.0079618666667			16.363909266667	0.0731003710259		
135	49.269856550841	0.0231888378582			16.421728241848	0.0731015901435		
136	49.363443284175	0.4666507146891			16.421728241848	0.0720421468081		
137	49.70213669592	8.29000000e-005			16.820817732509	0.0720433482574		
138	50.059195017508	1.3279036633374			16.820817732509	0.071014157568		
139	51.257505317508	1.2390379946958			16.991177446592	0.0711278965204		
140	51.418575848654	8.29000000e-005			16.991177446592	0.0701260971327		
141	52.828863917508	0.374612382082			17.013652892082	0.0702165778839		
142	53.824328117508	0.0382271638826			17.013652892082	0.0692408615244		
143	53.992217862125	8.29000000e-005			17.156377876336	0.0692415129133		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : !tGrayPa...
144	54.079990584175	0.460354785251			17.155377875038	0.0582929990378		
145	54.427380694264	8.29000000e-005			18.175959553207	0.0707063277741		
146	54.518005912985	0.0079618666667			18.175959553207	0.0597510001015		
147	54.671157288124	8.29000000e-005			18.529757196654	0.0724002505181		
148	54.805128384175	0.0083352604931			18.529757196654	0.0714349138446		
149	55.040424756155	8.29000000e-005			18.625259682239	0.0714360191779		
150	55.565653250842	0.0122805355983			18.625259682239	0.0704950715571		
151	55.607805149808	8.29000000e-005			18.844348864047	0.0704971620486		
152	55.420391984175	0.5000473285581			18.844348864047	0.0695816147636		
153	55.502252117508	0.9994926522599			19.087936583207	0.0596646179946		
154	56.605181017508	0.0087142485495			19.087936583207	0.0587714818654		
155	57.008031067094	8.29000000e-005			19.374664425408	0.0588004678047		
156	58.050195917508	0.4988354909444			19.374664425408	0.0679521403406		
157	58.050570082916	8.29000000e-005			21.519938027584	0.0679631977077		
158	58.605609050842	0.0140100957292			21.519938027584	0.0671105577264		
159	58.832201894802	8.29000000e-005			22.165707205989	0.0671146809854		
160	58.812004417508	0.8214610527247			22.165707205989	0.0662361175174		
161	58.908118784175	1.477102168503			22.392235022893	0.0662871409742		
162	59.128785384175	0.5346568931840			22.392235022893	0.0654787812082		
163	59.635324782751	8.29000000e-005			22.483176329875	0.0678420590543		
164	59.993935860842	0.0119112792048			22.483176329875	0.0670246851453		
165	60.792554678142	8.29000000e-005			22.571154829875	0.0722237732871		
166	62.660518584175	0.0054813178223			22.571154829875	0.0713639664822		
167	62.782190050842	0.0077828397047			23.177537629875	0.0716639273258		
168	62.940551009786	8.29000000e-005			23.177537629875	0.0708208222982		
169	63.485229917509	0.7805927281428			23.413810465026	0.0708776944651		
170	63.488493717509	0.0101919811234			23.413810465026	0.0700535352172		
171	63.504959674282	8.29000000e-005			23.751002998541	0.072423183074		
172	64.574612846186	8.29000000e-005			23.751002998541	0.0715907326939		
173	65.270130850840	0.0052204047958			23.819795612482	0.0716452974448		
174	65.288291602233	0.0048341333333			23.819795612482	0.0708321349738		
175	65.518105957396	8.29000000e-005			24.671953304665	0.0708330770193		
176	66.0010611751	0.0061098542083			24.671953304665	0.0700371997494		
177	66.001687430433	8.29000000e-005			24.855976329875	0.0729003317924		
178	66.338598784176	0.8461896930659			24.855976329875	0.0720903281059		
179	66.710623924449	8.29000000e-005			24.9695177335	0.0721430435614		

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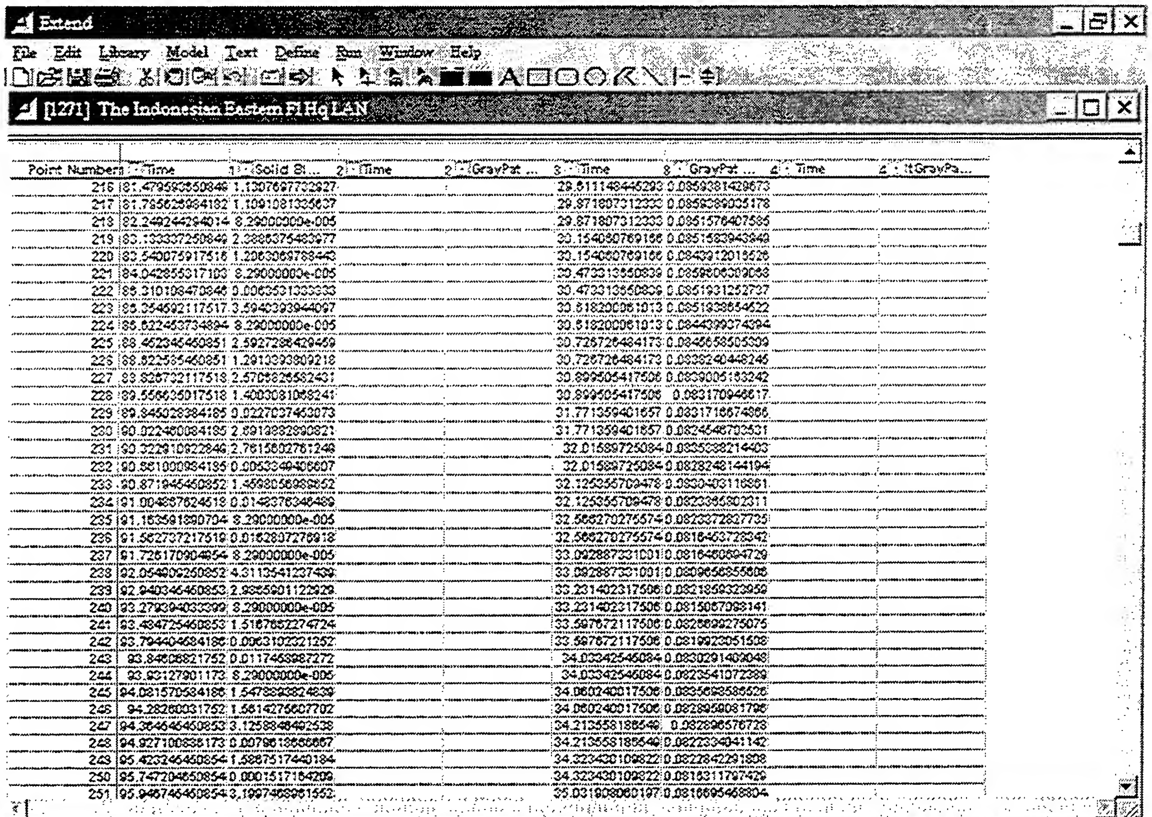
[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : !tGrayPa...
180	67.216385384177	0.0001106900981			24.9695177335	0.0713502629618		
181	67.237876643128	8.29000000e-005			24.996528396444	0.0713511739508		
182	68.067725460844	0.9117604203767			24.996528396444	0.0705756177122		
183	68.212120292537	8.29000000e-005			25.390087992478	0.0705281626397		
184	68.314252117511	1.8472290093831			25.390087992478	0.0696687200307		
185	69.229535917511	0.9263997308234			25.717751425221	0.0693696114288		
186	69.980319850844	1.9249385463355			25.717751425221	0.06912631769		
187	70.179595917511	2.81718095613			26.199618829875	0.0784956932599		
188	70.422983917511	2.8542842804916			26.199618829875	0.0776694228046		
189	71.120978272714	0.0048341333333			26.326289663208	0.0903695504842		
190	71.274272917512	0.0112534470237			26.326289663208	0.0894272114167		
191	71.395521950846	0.0237246966877			26.794807915417	0.0894280749583		
192	72.193249650846	0.0105769087808			26.794807915417	0.0885061360412		
193	73.06247525409	8.29000000e-005			27.102297958042	0.0885069905804		
194	73.809462117512	0.9471091800278			27.102297958042	0.0876038581225		
195	73.809535017512	0.0001085133702			27.386446869475	0.0876047040408		
196	74.219613117513	0.0054760892405			27.386446869475	0.0867196030404		
197	74.320181570918	8.29000000e-005			27.683197563209	0.0867990805689		
198	74.482875117513	0.0205947392152			27.683197563209	0.0859310897632		
199	75.228886870049	8.29000000e-005			27.888920046588	0.0859319187632		
200	75.455623917513	1.04991198146			27.888920046588	0.0850811076853		
201	75.460327900994	0.0157049013782			28.573758614211	0.0850819284784		
202	75.682358934328	0.010132169997			28.573758614211	0.0842477919247		
203	75.928137634328	0.0181299207257			28.821927263209	0.0843291991999		
204	76.174631461495	8.29000000e-005			28.821927263209	0.0835104691108		
205	76.33525878418	0.973948187461			29.011236329875	0.0904029514992		
206	76.395566567651	0.0138690463698			29.011236329875	0.0895336923502		
207	76.59453298418	0.9796482076005			29.150444517508	0.0895678359578		
208	76.705287192212	8.29000000e-005			29.150444517508	0.0888326860815		
209	79.549350117515	0.0219316546827			29.44867801327	0.0888344656153		
210	79.689994624735	8.29000000e-005			29.44867801327	0.0879963947133		
211	79.718800560848	0.0152421250008			29.510750263933	0.0879971767888		
212	79.727146884181	3.231836759722			29.510750263933	0.0871747732674		
213	80.591146584182	0.0214275295162			29.524131984173	0.0875436386303		
214	80.809982584182	2.2096946493289			29.524131984173	0.0867330989207		
215	81.211468488824	8.29000000e-005			29.811148446293	0.0867338665133		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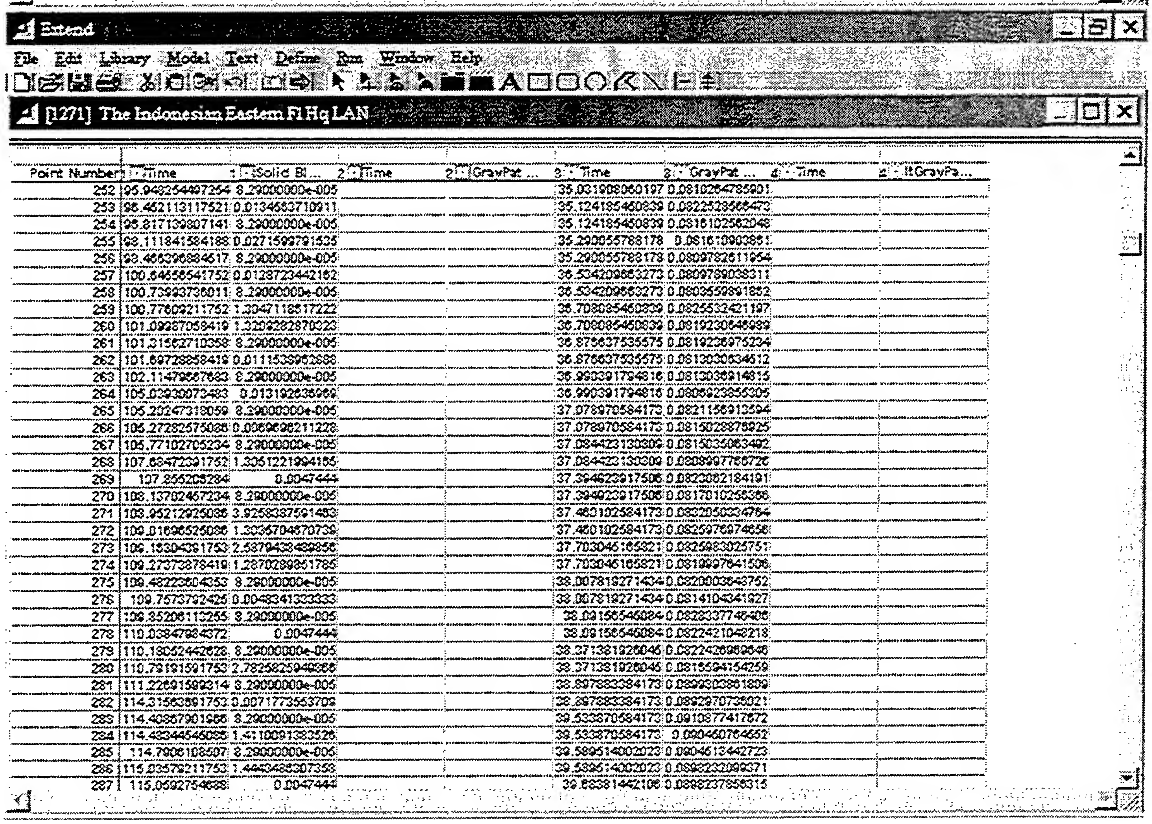
File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Numbers	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
216	81.479593550849	1.1307697732827			29.611148445293	0.0859381429673		
217	81.765625984182	1.1091081335637			29.871807312333	0.0859289005178		
218	82.249244294014	8.29000000e-005			29.871807312333	0.0851576407585		
219	83.133337250849	2.3386375483977			30.154050769166	0.0851583943849		
220	83.540075917518	1.2063069783443			30.154050769166	0.0843912018526		
221	84.042853317183	8.29000000e-005			30.473313550839	0.0859806309063		
222	85.310108470846	0.0063531333333			30.473313550839	0.0851931252737		
223	85.354592117517	3.5940393944097			30.618200061013	0.0851939854622		
224	85.622453734894	8.29000000e-005			30.618200061013	0.0844399074394		
225	88.462345460851	2.5927298429459			30.726726484173	0.0845658505309		
226	88.822585460851	1.2913393809218			30.726726484173	0.0838240448245		
227	88.826732117518	2.5705826582431			30.899505417506	0.0839005183242		
228	89.556635017518	1.4003081068241			30.899505417506	0.083170946617		
229	89.845028384185	0.0227037463073			31.771359401657	0.0831716674866		
230	90.022460084185	2.6913832890821			31.771359401657	0.0824548703531		
231	90.322910922846	2.7615802761248			32.01589725084	0.0835038214403		
232	90.561000934185	0.0053349406607			32.01589725084	0.0828248144194		
233	90.871945460852	1.4598056988652			32.125356709478	0.0830403116861		
234	91.004887624519	0.0142376346489			32.125356709478	0.0823365802311		
235	91.163591890704	8.29000000e-005			32.568270275574	0.0823372827735		
236	91.562737217519	0.0162807276918			32.568270275574	0.0816463728342		
237	91.726170904854	8.29000000e-005			33.092887331001	0.0816460694729		
238	92.054909260852	4.3113541237439			33.092887331001	0.0809656855808		
239	92.940346460853	2.9355901122929			33.231402317506	0.0821859323959		
240	93.279394033399	8.29000000e-005			33.231402317506	0.0815067088141		
241	93.434725460853	1.5167652274724			33.597672117506	0.0826899275075		
242	93.794404684186	0.0063102321252			33.597672117506	0.0819923051508		
243	93.84806821752	0.0117463987272			34.03342546084	0.0830291409048		
244	93.93127901173	8.29000000e-005			34.03342546084	0.0823541072389		
245	94.021570584186	1.5478893824839			34.060240017506	0.0835693586526		
246	94.28280031752	1.5614275607702			34.060240017506	0.0828958081796		
247	94.364646460853	3.1258848492538			34.213558186549	0.082896576723		
248	94.927100838173	0.0079613666667			34.213558186549	0.0822334041142		
249	95.423246460854	1.5887517440184			34.323430109822	0.0822842291808		
250	95.747204650854	0.0001517164209			34.323430109822	0.0816311797429		
251	95.946746460854	3.1997469961552			35.031908060197	0.0816695468804		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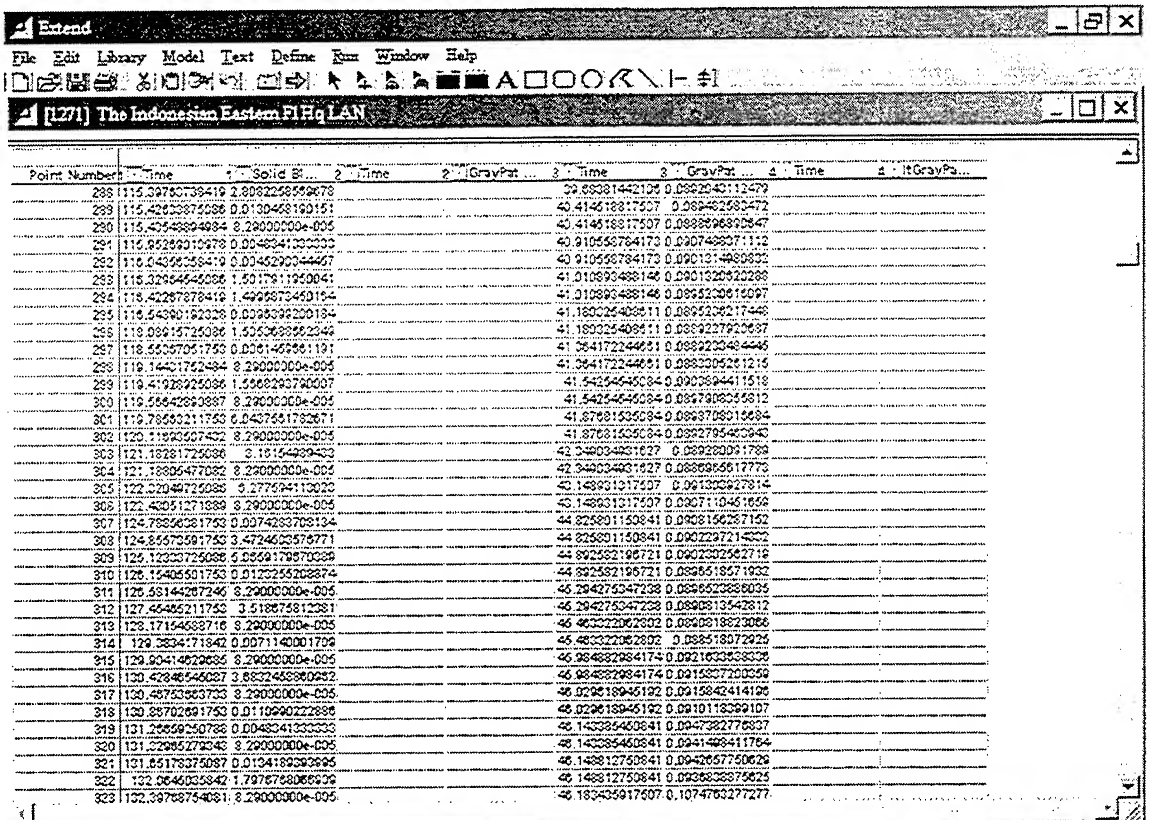
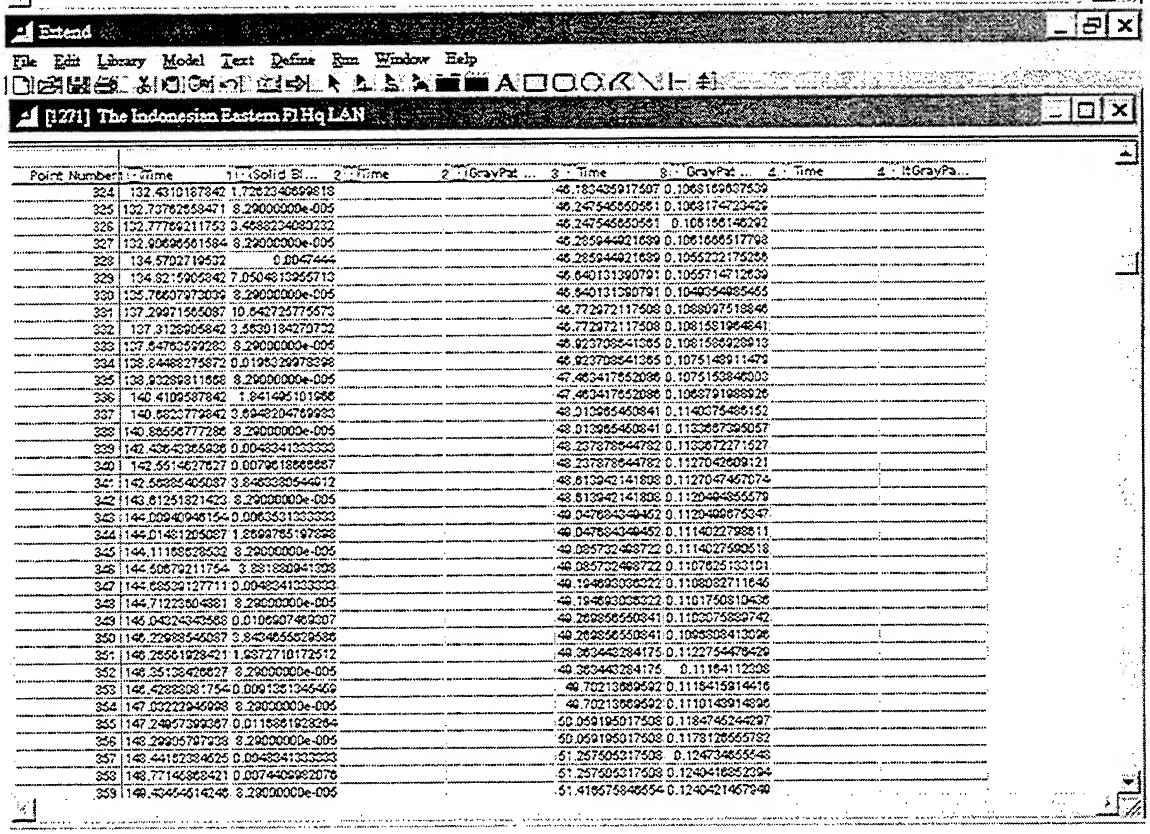
File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Numbers	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
252	95.948254497254	8.29000000e-005			35.031908060197	0.0810264785901		
253	96.452113117521	0.0134683710911			35.124185460839	0.0822528568473		
254	96.817139807141	8.29000000e-005			35.124185460839	0.0816102562048		
255	98.111841584188	0.0271599791535			35.290055788178	0.081610903851		
256	98.466396884617	8.29000000e-005			35.290055788178	0.0809782611954		
257	100.64656541752	0.0128723442162			36.534209663273	0.0809789038311		
258	100.73993736011	8.29000000e-005			36.534209663273	0.0803559891852		
259	100.77609211752	1.3047118517222			36.708085460839	0.0825533421197		
260	101.09287058419	1.3209282870323			36.708085460839	0.0819230646989		
261	101.31562710358	8.29000000e-005			36.875637535575	0.0819236975234		
262	101.69728858419	0.0111539962888			36.875637535575	0.0813030634512		
263	102.11479567683	8.29000000e-005			36.990391794816	0.0813036914815		
264	105.03930073483	0.013192636969			36.990391794816	0.0806923855305		
265	105.20247318059	8.29000000e-005			37.078970584173	0.0821156913594		
266	105.27282575086	0.0069698211228			37.078970584173	0.0815028878925		
267	105.77102705234	8.29000000e-005			37.084423130309	0.0815035063492		
268	107.68472391752	1.3051221994156			37.084423130309	0.0808997786726		
269	107.855205284	0.0047444			37.394623917506	0.0823082184191		
270	108.13702467234	8.29000000e-005			37.394623917506	0.0817010256366		
271	108.95212925086	3.9258387591483			37.460102584173	0.0832050334764		
272	109.01696525086	1.3035704670739			37.460102584173	0.0825976974656		
273	109.15304391753	2.5379433439856			37.703046165821	0.0825983025751		
274	109.27373878419	1.2870289851785			37.703046165821	0.0819997641506		
275	109.48223604353	8.29000000e-005			38.007819271434	0.0820003648752		
276	109.7573792425	0.0048341333333			38.007819271434	0.0814104341927		
277	109.85208113255	8.29000000e-005			38.09156546084	0.0828337746406		
278	110.03847984372	0.0047444			38.09156546084	0.0822421048218		
279	110.18052442628	8.29000000e-005			38.371381926046	0.0822426969646		
280	110.79191591753	2.7825825949366			38.371381926046	0.0816594154259		
281	111.22691589314	8.29000000e-005			38.897883384173	0.0899303861809		
282	114.31563891753	0.0071773553709			38.897883384173	0.0892970736021		
283	114.40867901966	8.29000000e-005			39.533870584173	0.0910877417872		
284	114.48344546085	1.4110091383526			39.533870584173	0.090460764652		
285	114.7906108507	8.29000000e-005			39.589514002023	0.0904613442723		
286	115.03579211753	1.4440488307353			39.589514002023	0.0898232099371		
287	115.0592754688	0.0047444			39.88381442106	0.0898237856315		



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ItGrayPa...
288	115.39760739419	2.80832258559678			39.68381442105	0.0892040112479		
289	115.42630875086	0.0130468190151			40.414618817507	0.0894625803472		
290	115.43549894984	8.29000000e-005			40.414618817507	0.0888896890847		
291	115.95269010978	0.0048341333333			40.910558784173	0.0907498071112		
292	116.04358058419	0.0046290044467			40.910558784173	0.0901314989832		
293	116.32984545086	1.5017911950041			41.010893488146	0.0901320520288		
294	116.42257878419	1.4996873450164			41.010893488146	0.0895520615097		
295	116.54390192328	0.0096399200164			41.180025408611	0.0895208217448		
296	118.08915725086	1.5353698562349			41.180025408611	0.0889227920697		
297	118.55057051753	0.0081469561191			41.364172244651	0.0889230484446		
298	119.14401752484	8.29000000e-005			41.364172244651	0.0883305251215		
299	119.41928925086	1.5568293790007			41.54254645084	0.0903694411518		
300	119.56642890387	8.29000000e-005			41.54254645084	0.0897908055812		
301	119.78583211753	6.0437551782671			41.87681535084	0.0893708015684		
302	120.11893507402	8.29000000e-005			41.87681535084	0.0892795450940		
303	121.18281725086	3.18154899433			42.349034931627	0.089280091789		
304	121.18805477082	8.29000000e-005			42.349034931627	0.0886985617773		
305	122.02049725086	5.277594113020			43.148931317507	0.091300927814		
306	122.40051271889	8.29000000e-005			43.148931317507	0.0907110461659		
307	124.78856081753	0.0074283708134			44.825801150841	0.0908156287152		
308	124.85573591753	3.4724600576771			44.825801150841	0.0902297214332		
309	125.12303725086	5.0559179870089			44.892582196721	0.0902302562719		
310	126.15405501753	0.0123255208874			44.892582196721	0.0896518571932		
311	126.58144287246	8.29000000e-005			46.294275347238	0.0896523838035		
312	127.46465211753	3.518675812381			46.294275347238	0.0890813542812		
313	128.17154688716	8.29000000e-005			46.463322062802	0.0890818823066		
314	129.3834171842	0.0071140001709			46.463322062802	0.088518072926		
315	129.90414629685	8.29000000e-005			46.984882984174	0.0921633538306		
316	130.42846546087	3.8832458860252			46.984882984174	0.0915907200359		
317	130.48753583733	8.29000000e-005			48.029618945192	0.0915842414196		
318	130.88702691753	0.0110990222886			48.029618945192	0.0910113099107		
319	131.25659250788	0.0048341333333			48.143385460841	0.0947382776837		
320	131.32985279343	8.29000000e-005			48.143385460841	0.0941498411764		
321	131.85178375087	0.0134189393895			48.148812750841	0.0942657750629		
322	132.0646035842	1.7976758066939			48.148812750841	0.0936836375625		
323	132.39768754081	8.29000000e-005			48.183435917507	0.1074763277277		



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ItGrayPa...
324	132.4310187842	1.7262340699818			48.183435917507	0.1068169637539		
325	132.73762558471	8.29000000e-005			48.247545650551	0.1068174723429		
326	132.77769211753	3.4688234080232			48.247545650551	0.106156146292		
327	132.90696561584	8.29000000e-005			48.285944921639	0.1061666517798		
328	134.5702719532	0.0047444			48.285944921639	0.1055232175258		
329	134.82159052842	7.0504813955713			48.640131390791	0.1055714712639		
330	135.76607973039	8.29000000e-005			48.640131390791	0.1049054985465		
331	137.29971565087	10.642725775673			48.772972117508	0.1088097518846		
332	137.3126905842	3.5530184279732			48.772972117508	0.1081581964841		
333	137.64763599280	8.29000000e-005			48.923708541365	0.1081586928913		
334	138.84488275872	0.0195329978398			48.923708541365	0.1075148911479		
335	138.93289811658	8.29000000e-005			47.463417652086	0.1075153846903		
336	140.4109587842	1.841495101966			47.463417652086	0.1068791988926		
337	140.6623779842	3.6948204769933			48.013965460841	0.1140075486152		
338	140.86556777286	8.29000000e-005			48.013965460841	0.1133667395057		
339	142.43642365836	0.0048341333333			48.237878544782	0.1133672271527		
340	142.5514627627	0.0079618666587			48.237878544782	0.1127042609121		
341	142.56885405087	3.8463383544912			48.813942141808	0.1127047467674		
342	143.61251321423	8.29000000e-005			48.813942141808	0.1120494855579		
343	144.00940945154	0.0063531333333			49.047684349452	0.1120499875347		
344	144.01481205087	1.8699765197898			49.047684349452	0.1114022798811		
345	144.11168528532	8.29000000e-005			49.085732468722	0.1114027590518		
346	144.50679211754	3.881880941308			49.085732468722	0.1107625133101		
347	144.68539127711	0.0048341333333			49.194693008322	0.1108082711646		
348	144.71223604381	8.29000000e-005			49.194693008322	0.1101750810436		
349	146.04324343568	0.0106507469307			49.269856560841	0.1102075889742		
350	146.22985450387	3.8404655029586			49.269856560841	0.1095808413026		
351	146.25561928421	1.9372710172512			49.363443284175	0.1122754476429		
352	146.35136426827	8.29000000e-005			49.363443284175	0.11164112308		
353	146.42888081754	0.0091381345469			49.70213669692	0.1116415914416		
354	147.03222946998	8.29000000e-005			49.70213669692	0.1110143914896		
355	147.24957399387	0.0115861928264			50.059195017508	0.1184745244297		
356	148.29905797928	8.29000000e-005			50.059195017508	0.1178126565792		
357	148.44152384625	0.0048341333333			51.257505317508	0.1247348555548		
358	148.77148868421	0.0074409982076			51.257505317508	0.1240418852394		
359	149.40464514246	8.29000000e-005			51.416575846554	0.1240421467949		

Extend

File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GravPat ...	3: Time	3: GravPat ...	4: Time	4: ItGravPa...
360	149.48401211754	2.1086641789352			51.416575846554	0.1233569300723		
361	149.88008482263	8.29000000e-005			51.90078039625	0.1233572880834		
362	150.02352111754	2.1412079814021			51.90078039625	0.1226795007852		
363	150.46751058421	2.159791810402			52.828860917508	0.1247372811273		
364	151.08568101754	0.0146512277059			52.828860917508	0.1240556387496		
365	151.39939878421	1.8929968082529			53.824328117508	0.1242535994157		
366	151.79109921754	0.0082469589363			53.824328117508	0.1235783081155		
367	152.26659966455	8.29000000e-005			53.992217962125	0.12357876859		
368	152.71675261754	6.1850256064265			53.992217962125	0.1229107653689		
369	152.7222531259	0.0023896			54.079990584175	0.1253461155595		
370	152.92833389322	8.29000000e-005			54.079990584175	0.1246712170887		
371	156.33001792178	0.0048341333333			54.427380894284	0.1246718627877		
372	156.48798142196	8.29000000e-005			54.427380894284	0.1240049694038		
373	156.78001741754	15.395535248565			54.518005912986	0.1240475482309		
374	157.31001938421	0.005009514373			54.518005912986	0.1233877183573		
375	157.47679143204	8.29000000e-005			54.871167288124	0.1233881598147		
376	157.97052015088	0.0221846717722			54.871167288124	0.1227353124083		
377	158.75295105308	8.29000000e-005			54.797192968342	0.1227357510327		
378	158.75875921754	5.3837511783541			54.797192968342	0.1220837733958		
379	158.93129249702	8.29000000e-005			54.805128384175	0.1221338431877		
380	159.33191051754	0.0097384255502			54.805128384175	0.1214642000297		
381	159.58622388421	0.0058514122404			55.043424756155	0.1214848340611		
382	159.86593711171	8.29000000e-005			55.043424756155	0.1208818486087		
383	159.98429211755	1.814813543154			55.565668250842	0.1209258262586		
384	160.21487725088	1.8449928635174			55.565668250842	0.1202692875734		
385	160.46337201755	3.6366194735301			55.607835149806	0.120299597107		
386	160.58834468421	0.0532813024781			55.607835149806	0.1198795955756		
387	160.84048522956	8.29000000e-005			56.282422370443	0.1198800228951		
388	161.39405878421	1.843082755852			56.282422370443	0.119086279189		
389	161.53353965088	1.8672943257317			56.35136819443	0.1190667043182		
390	161.7715537559	8.29000000e-005			56.35136819443	0.1184692211309		
391	162.08952925088	3.6888147171207			56.423391984175	0.1210257918848		
392	162.42052925088	1.8862131527915			56.423391984175	0.1204114475646		
393	162.90529878421	7.2278958075418			56.502252117508	0.1254850140273		
394	163.29026546088	3.7148088573904			56.502252117508	0.1248512516287		
395	163.61217591755	1.8793405925034			56.806181317508	0.124895262885		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GravPat ...	3: Time	3: GravPat ...	4: Time	4: ItGravPa...
396	163.66146987687	0.0048341333333			56.806181317508	0.1242676485931		
397	164.21213591755	5.6303753116451			57.008301367394	0.124258065181		
398	165.20048546088	1.7987994349657			57.008301367394	0.1236487248551		
399	166.63743556846	8.29000000e-005			57.532906775218	0.1236471393551		
400	167.28228595088	0.0193925109484			57.532906775218	0.1230319794678		
401	167.38270742991	0.0063531333333			57.555747750534	0.1230323918958		
402	167.48261842944	0.0048341333333			57.555747750534	0.1224233206486		
403	167.53585505088	0.007801902147			58.050195917508	0.1248432983266		
404	167.7096522404	8.29000000e-005			58.050195917508	0.1242283067092		
405	167.85520148421	3.4818636444208			58.053570062916	0.1242287150836		
406	169.14081068948	8.29000000e-005			58.053570062916	0.123618750794		
407	169.69395878422	1.646052885481			58.605539050842	0.1236884292014		
408	169.69652910073	8.29000000e-005			58.605539050842	0.1230850710102		
409	169.80159198422	0.0055950979199			58.632231894632	0.1230854754005		
410	169.93757878422	1.6254830883908			58.632231894632	0.1224879730627		
411	169.98519058422	1.6285800786548			58.755365831748	0.1224883755199		
412	169.99805593393	8.29000000e-005			58.755365831748	0.1218988442372		
413	171.32499725088	1.7272365581291			58.812004417508	0.1263481469044		
414	171.47129271755	4.9619567853516			58.812004417508	0.1257407038905		
415	171.68466258422	3.3882739031704			58.938118784175	0.1328421566237		
416	172.11986873696	8.29000000e-005			58.938118784175	0.1322065482188		
417	173.39409878422	6.7442611835356			59.128785384175	0.1347642357698		
418	173.58168405528	8.29000000e-005			59.128785384175	0.1341225013138		
419	176.25707211755	1.7889047568124			59.885324782751	0.1341228960757		
420	176.67034675088	0.0173156822147			59.885324782751	0.1334872425398		
421	176.83882391755	10.292587565981			59.882378327823	0.1334876354307		
422	177.19819058422	5.2780341884241			59.882378327823	0.1328579767731		
423	177.30155591755	3.57842803033			59.972424055168	0.1328583878108		
424	177.46215574927	8.29000000e-005			59.972424055168	0.1322346198051		
425	179.25825988422	0.0133444257604			59.993935650842	0.1322805411037		
426	179.46135211044	0.0161717061088			59.993935650842	0.1316723610051		
427	179.47351030341	8.29000000e-005			60.792554678142	0.1316727483380		
428	179.56896911755	1.7343366724143			60.792554678142	0.1310603170004		
429	179.58149211755	5.1184321923851			60.950364607651	0.1310607925918		
430	179.66877219275	8.29000000e-005			60.950364607651	0.1304639400699		
431	180.04407688422	1.7511085036573			61.047994953025	0.1304643238682		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GravPat ...	3: Time	3: GravPat ...	4: Time	4: ItGravPa...
432	180.04638608422	3.4185120878446			61.947994958025	0.1298531518668		
433	180.14711495505	8.29000000e-005			61.952515132927	0.1298505338944		
434	180.68057878422	3.3546675044898			61.952515132927	0.1292578754821		
435	180.75861878422	5.1510949738408			62.660518584175	0.1292830191423		
436	181.15700698422	1.7260085404498			62.660518584175	0.1286926957215		
437	181.28125733578	8.29000000e-005			62.762190050842	0.1287281589822		
438	181.95705725089	6.7950412372229			62.762190050842	0.1281400309859		
439	182.09031709959	8.29000000e-005			62.940551009788	0.1281434077851		
440	183.70140711755	1.64153225674			62.940551009788	0.1275635700807		
441	183.70910410713	8.29000000e-005			63.485223917509	0.131140916013		
442	184.80483754174	0.0079618666667			63.485223917509	0.130559191158		
443	185.04254617056	5.8359100190195			63.488493717509	0.130598101058		
444	185.93116015506	8.29000000e-005			63.488493717508	0.1300104682959		
445	187.03479441950	0.0047444			63.604959874282	0.1300108400448		
446	187.24292293601	8.29000000e-005			63.604959874282	0.1294304346089		
447	187.61651922508	0.0070129774988			64.574612848185	0.1294308046982		
448	187.64121547625	0.0048341333333			64.574612848188	0.1288555585777		
449	188.69991467789	8.29000000e-005			64.663484735784	0.1288559260222		
450	190.66079910227	0.0084323709238			64.663484735784	0.1282857860819		
451	190.77818466658	0.0161450751408			65.083328704158	0.128286132876		
452	191.59227672789	0.0178603466893			65.083328704158	0.1277209957258		
453	191.62033325724	8.29000000e-005			65.270130650843	0.1277409931048		
454	191.64707811416	0.0048341333333			65.270130650843	0.1271837124333		
455	191.87197640834	0.0081594840207			65.285329180233	0.1272049147724		
456	192.06233563357	8.29000000e-005			65.285329180233	0.1266494347953		
457	194.99899406481	0.0079618666667			65.382446989575	0.1266705446478		
458	195.95592652214	8.29000000e-005			65.382446989575	0.1261198000498		
459	196.93235650444	0.0048341333333			65.613105957396	0.1261201634646		
460	196.96335647205	8.29000000e-005			65.613105957396	0.1255741887509		
461	197.03255310391	0.0048341333333			65.663854676057	0.1255746478253		
462	197.37826280655	8.29000000e-005			65.663854676057	0.1250332780205		
463	197.89338279246	0.0048341333333			65.799443083556	0.1250336353511		
464	198.02188354119	8.29000000e-005			65.799443083556	0.1244970103056		
465	198.63202567254	14.544893082395			65.889229235185	0.1244973561306		
466	199.1350463748	8.29000000e-005			65.889229235185	0.1239653260748		
467	199.67612235684	0.0101436139161			66.00106111751	0.1239914366054		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GravPat ...	3: Time	3: GravPat ...	4: Time	4: ItGravPa...
468	199.94069836516	0.0089125575201			66.00106111751	0.1234638124709		
469	200.02540409985	0.0079618666667			66.001687430403	0.1234641662368		
470	200.26497232073	0.0098155908959			66.001687430403	0.1229410129901		
471	200.26755812073	15.510138422963			66.336598784175	0.12652232527		
472	200.38117368877	0.0079618666667			66.336598784175	0.1259884757963		
473	200.39201978959	8.29000000e-005			66.710623924449	0.1259888255953		
474	201.34985447654	0.0079618666667			66.710623924449	0.1254594607719		
475	201.55830642794	0.0048341333333			66.838684229802	0.1254598090913		
476	203.16784071064	8.29000000e-005			66.838684229802	0.1249348725516		
477	203.72878103282	0.0063531333333			66.899144446981	0.1249352195126		
478	204.20548095631	0.0088456302471			66.899144446981	0.1244146560988		
479	204.27091764751	8.29000000e-005			66.904946524982	0.1244150015155		
480	204.28623975529	19.369646805141			66.904946524982	0.1238987565959		
481	204.42554184471	8.29000000e-005			67.215385384177	0.123899215991		
482	204.71702081728	0.0104633804446			67.215385384177	0.1233872357598		
483	204.80572838395	17.900586693788			67.237876643128	0.1233875783216		
484	204.87914705051	0.030202999687			67.237876643128	0.1228793105095		
485	205.20905866141	8.29000000e-005			68.067725460844	0.1255319110049		
486	205.62589173358	0.0063531333333			68.067725460844	0.1261129277831		
487	205.85784582271	8.29000000e-005			68.212120292537	0.1261132675172		
488	206.46413316285	0.0048341333333			68.212120292537	0.1255935194865		
489	206.90448204189	8.29000000e-005			68.542020396803	0.1255938578539		
490	207.46438897478	0.005740815398			68.542020396803	0.125088293391		
491	207.52146929112	8.29000000e-005			68.814252117511	0.1325973544048		
492	208.44253791274	0.0063531333333			68.814252117511	0.1320606230194		
493	209.44848142544	8.29000000e-005			69.239535917511	0.1358111292081		
494	210.13311383204	0.0063531333333			69.239535917511	0.1352805036871		
495	210.49973544653	0.0048341333333			69.980319860844	0.1430253528843		
496	210.70496378601	8.29000000e-005			69.980319860844	0.1424609536576		
497	211.24468464159	0.0048341333333			70.179595917511	0.1537649334011		
498	211.47440756316	8.29000000e-005			70.179595917511	0.1531498736675		
499	212.54210954134	0.0063531333333			70.422983917511	0.1645870107894		
500	212.83736254703	8.29000000e-005			70.422983917511	0.1639113663281		
501	213.29380950469	0.0085756634165			71.120978272714	0.1639386248235		
502	213.69754595818	0.0047444			71.120978272714	0.163280106471		
503	213.85113596039	8.29000000e-005			71.274272917512	0.1633247830068		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
504	214.1410745261 7	0.0094630014631			71.274272917512	0.1528792105839		
505	214.3716957928 3	0.008616912708			71.398621950846	0.1527729840898		
506	214.384704618 1	8.29000000e-005			71.398621950846	0.1521321465685		
507	215.0580462030 4	0.0095891436226			72.193249550846	0.1521737889417		
508	215.7884487513 5	8.29000000e-005			72.193248550846	0.1515378713058		
509	217.0500291060 8	0.0048341333333			73.06247525439	0.1515381364047		
510	218.44899539719	0.0047444			73.06247525439	0.1609071280693		
511	218.5485477354 7	8.29000000e-005			73.278532003591	0.1609074518875		
512	218.7583148894 4	0.0123268107833			73.278532003591	0.1602813528529		
513	219.8123737804 3	8.29000000e-005			73.809462117512	0.1639658025808		
514	221.3172776234 2	0.0048341333333			73.809462117512	0.1633310731132		
515	221.5811179134 6	0.0063531333333			73.809535017512	0.1633314907077		
516	221.7144680958 4	8.29000000e-005			73.809535017512	0.1627008701799		
517	222.0333189650 3	0.0048341333333			74.219813117513	0.1627220132818		
518	222.043261366	8.29000000e-005			74.219813117513	0.162098159484		
519	223.2579320480 9	0.0158523986401			74.320181570918	0.1620984783301		
520	223.8593423048 2	0.0095167181356			74.320181570918	0.1614754190262		
521	224.0535205246 4	8.29000000e-005			74.482875117513	0.1615547092147		
522	224.7775143336 9	0.0048341333333			74.482875117513	0.1609380881872		
523	225.3569893658 4	0.0063531333333			75.228886870049	0.1609384045894		
524	226.3508508301 7	8.29000000e-005			75.228896870049	0.1603264715021		
525	225.584087638 9	0.0063856412246			75.465623917513	0.164318532268		
526	225.5923735769 6	8.29000000e-005			75.465623917513	0.1636961135852		
527	226.4485411920 4	0.0048341333333			75.460827900994	0.163755801348		
528	227.0980319739 9	0.0095876490548			75.460827900994	0.1631378561807		
529	228.3706281373 4	8.29000000e-005			75.682358934328	0.1631758907844		
530	229.5923316374 7	0.0048341333333			75.682358934328	0.162562447586		
531	230.2430489021 5	8.29000000e-005			75.928137634328	0.1626308051827		
532	232.2427675149 6	0.0103400380674			75.928137634328	0.1620215017925		
533	232.3186603074 6	8.29000000e-005			76.174631461495	0.1620218122794		
534	233.22385932073	0.0047444			76.174631461495	0.1614172532783		
535	233.5251864370 3	8.29000000e-005			76.33525878418	0.1550513883051		
536	233.7964850285 8	0.0063531333333			76.33525878418	0.1544078143719		
537	234.7766827526 9	8.29000000e-005			76.398566567681	0.1544893721614		
538	234.895303950 7	0.0079618666667			76.398566567681	0.1538801522646		
539	234.9187509362 4	8.29000000e-005			76.59463298418	0.1575084789593		

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File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
540	236.1975696760 4	0.0048341333333			76.59463298418	0.1668903564908		
541	236.429140597 3	8.29000000e-005			76.705267192212	0.1668906722949		
542	238.4883487039 6	0.0048341333333			76.705267192212	0.1662771937464		
543	239.4860604233 8	0.0079618666667			76.831088952799	0.1662774085258		
544	240.5452357123 6	8.29000000e-005			76.831088952799	0.1656683337693		
545	242.480761153 3	0.0048341333333			77.868737282621	0.1656686374023		
546	242.4838440199 7	0.0094204058741			77.868737282621	0.1650640073687		
547	243.3325115632 1	8.29000000e-005			77.950875722815	0.1650643099234		
548	244.3578079709 8	0.0063531333333			77.950875722815	0.1644640760692		
549	246.2266039468 9	8.29000000e-005			78.544244840234	0.1644643775237		
550	246.9900257422 5	0.0048341333333			78.544244840234	0.1638684920979		
551	247.0042653136 4	8.29000000e-005			78.558056112706	0.1638687924602		
552	247.6207198069 4	0.0048341333333			78.558056112706	0.1632772093719		
553	247.7808252708 2	0.0067046571182			78.704497621983	0.1632775075499		
554	248.3255885628 9	8.29000000e-005			78.704497621983	0.1626901784857		
555	250.33339868886	0.0047444			79.248665212036	0.1626904766871		
556	250.4659936512 3	8.29000000e-005			79.248665212036	0.162107356699		
557	251.0393613873 8	0.0098209054944			79.549350117515	0.1621861798341		
558	251.5120073865 2	0.0048341333333			79.549350117515	0.1616089434775		
559	252.5281243404 8	8.29000000e-005			79.689994524735	0.1616072395489		
560	252.5826581165 2	0.0048341333333			79.689994524735	0.1610321248174		
561	252.600582674 9	0.0083267964185			79.718800550848	0.1610863672562		
562	252.6067787249 4	8.29000000e-005			79.718800550848	0.1605151390036		
563	252.7832715692 4	0.0079618666667			79.727146984181	0.1719755530461		
564	253.0452660177 6	8.29000000e-005			79.727146984181	0.1713678656785		
565	255.6570990015 7	0.0063531333333			80.591146584182	0.1714435812305		
566	256.2110184752 1	8.29000000e-006			80.591146584182	0.1708399066487		
567	257.6602330436 2	0.0079618666667			80.809982584182	0.178620521259		
568	257.6714487959 3	8.29000000e-005			80.809982584182	0.177993782588		
569	257.7434878967 5	0.0048341333334			81.211458488524	0.1779940734652		
570	258.2518188421 9	8.29000000e-005			81.211458488624	0.1773717165649		
571	260.4433975183 3	0.0073242568335			81.479583550849	0.181325467031		
572	261.061956509 6	0.0063531333334			81.479593550849	0.1806936810135		
573	261.2293052675 6	8.29000000e-005			81.795626984182	0.1846581492837		
574	264.0076843563 8	0.0315027302024			81.795626984182	0.1839173223765		
575	264.1628991658 5	8.29000000e-005			82.249244294014	0.1839176102237		

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[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
576	265.03441300716	0.0129793238535			82.2404424294014	0.1802812171087		
577	265.47683753254	0.0048341333334			82.25814215009	0.1803815038599		
578	266.07728301182	8.29000000e-005			82.25814215009	0.1825494987739		
579	266.46406122214	0.0048341333334			82.50627241463	0.1825497846359		
580	266.50403109944	8.29000000e-005			82.50627241463	0.1820221221456		
581	267.31957879826	0.0154236024004			82.86428094135	0.1820224070265		
582	267.99413216174	8.29000000e-005			82.86428094135	0.1813990425179		
583	268.08540001370	0.0102525904555			83.103337253849	0.1895790081946		
584	268.47107987918	8.29000000e-005			83.103337253849	0.188952279939		
585	268.61324984631	0.0175407290194			83.540075917516	0.193049638504		
586	269.75175218557	8.29000000e-005			83.540075917516	0.1923927379989		
587	271.03001960774	0.0048402541295			84.042855317103	0.1923930199717		
588	271.09940527441	0.0054482058152			84.042855317103	0.1917408402429		
589	271.486229078	8.29000000e-005			84.890555585083	0.1917411212599		
590	271.72003154641	0.0063531333334			84.890555585083	0.1910933472015		
591	271.76913181578	8.29000000e-005			85.358508875083	0.1910936272691		
592	272.59731010280	0.0079618585857			85.358508875083	0.1904602143827		
593	272.72092563222	8.29000000e-005			86.310109470846	0.190471605404		
594	273.00419920778	0.0123148962857			86.310109470846	0.189832438043		
595	273.57272525852	0.0096391743793			86.354692117517	0.2018929758235		
596	274.08320834254	8.29000000e-005			86.354692117517	0.201217746483		
597	275.02407110604	0.0048341333334			86.622453704894	0.2012180237403		
598	275.100876283	8.29000000e-005			86.622453704894	0.200547296993		
599	275.37709565075	0.0079618565657			87.062724355815	0.2005475753314		
600	275.46878161304	8.29000000e-005			87.062724355815	0.1998313023236		
601	276.4301957074	0.0113535204931			88.462346460851	0.2084950187454		
602	276.46553650447	8.29000000e-005			88.462346460851	0.2078046378886		
603	276.97351040349	0.0079618566657			88.622585460851	0.2120796027261		
604	277.10314254933	8.29000000e-005			88.622585460851	0.2113796700438		
605	277.25936423001	0.0072492575654			88.826732117518	0.2198637712261		
606	277.33187463711	8.29000000e-005			88.826732117518	0.2191405351366		
607	281.08742133481	0.0063531333334			89.566630017518	0.2237468118038		
608	281.75837838473	8.29000000e-005			89.566630017518	0.2230102156995		
609	283.50351756846	0.0079618566657			89.846028834135	0.2230876542087		
610	283.55232775301	0.0070991999999			89.846028834135	0.2223536095871		
611	283.71391143527	0.0048341333334			90.022460084185	0.231155956907		

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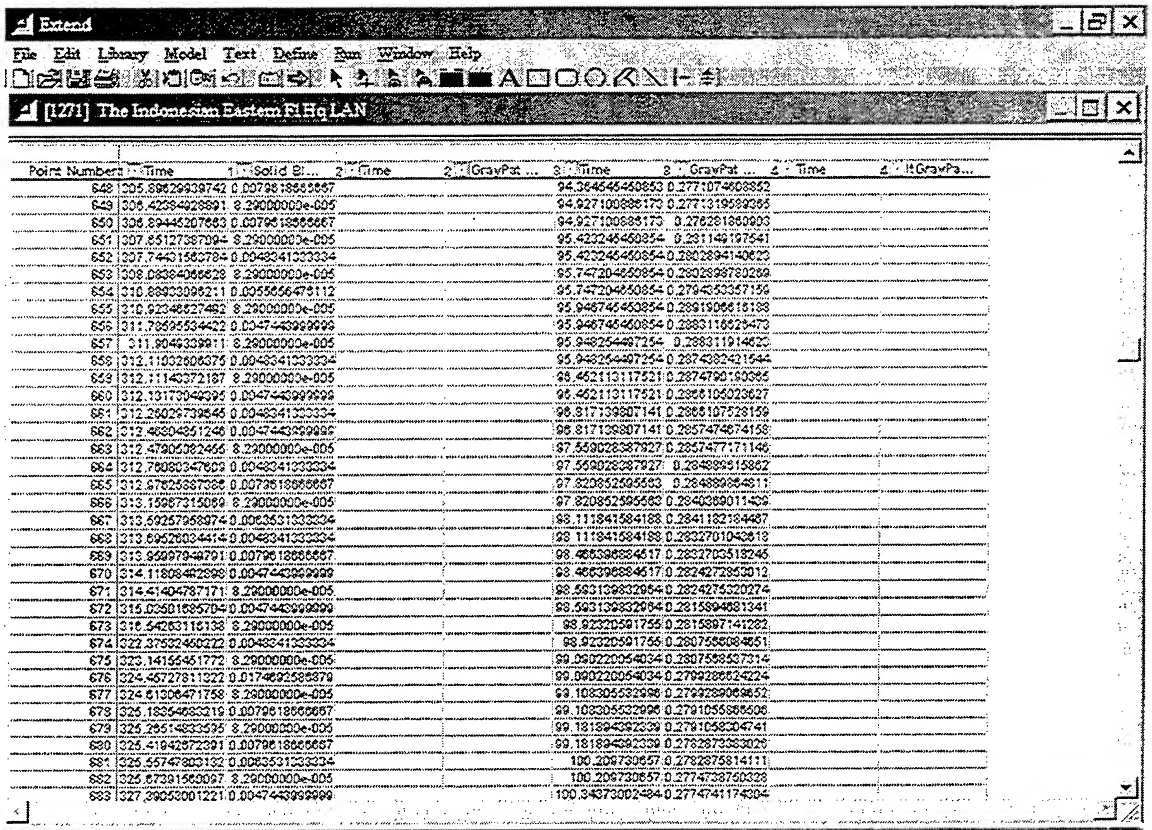
File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ItGravPa...
612	284.43659100367	0.0063531333334			90.022460084185	0.2304030059372		
613	286.08131336097	8.29000000e-005			90.322910922849	0.2393983102829		
614	286.20422002235	0.0048341333334			90.322910922849	0.2385210490223		
615	286.3084783194	8.29000000e-005			90.661000984185	0.2385383702582		
616	286.34576259396	0.0048341333334			90.661000984185	0.2378650777978		
617	286.48768008809	0.0063531333334			90.871946460852	0.2425903680857		
618	287.5409965383	8.29000000e-005			90.871946460852	0.2418078185112		
619	289.14000773027	0.009250905297			91.004887624518	0.2418556818488		
620	289.41969504883	0.0048341333334			91.004887624518	0.2410780108461		
621	289.42357538217	0.0115193503887			91.163591890704	0.2410782774056		
622	290.12877820037	8.29000000e-005			91.163591890704	0.2403065590819		
623	290.20163288616	0.0048341333334			91.558941113873	0.2403058563241		
624	290.62379338862	0.005720154504			91.558941113873	0.2395381059846		
625	290.62617170614	8.29000000e-005			91.562737217519	0.2395901210889		
626	291.79868086069	0.0099522335799			91.562737217519	0.2388270952258		
627	292.55101541958	8.29000000e-005			91.726170904854	0.2388273542383		
628	292.98905982941	0.0079618565657			91.726170904954	0.2380691771455		
629	293.13056878624	8.29000000e-005			92.054609250852	0.2517560156338		
630	293.47199591388	0.0063531333334			92.054609250852	0.2509593190818		
631	293.84256300051	0.0092672410129			92.940346460853	0.2504105539141		
632	294.28569323292	0.0065748329721			92.940346460853	0.2595890695159		
633	294.92539649469	0.0063531333334			93.279394033399	0.2595893310311		
634	295.40086033582	8.29000000e-005			93.279394033399	0.2587730123801		
635	297.20159428924	0.0063531333334			93.484725460853	0.2635427174979		
636	298.01503972316	0.0079618566657			93.484725460853	0.2627185647785		
637	298.14698825929	0.0034975598537			93.794404584186	0.2627353460704		
638	298.95742559562	8.29000000e-005			93.794404584186	0.2619152949339		
639	299.17711157896	0.0048341333334			93.84606821752	0.2619520009225		
640	300.15764131906	8.29000000e-005			93.84606821752	0.2611356510754		
641	302.26859887409	0.0048341333334			93.93127901173	0.2611352093308		
642	302.3606046956	0.0047443999999			93.93127901173	0.2603252273142		
643	302.85694299042	8.29000000e-005			94.031570584186	0.2651322371977		
644	303.43115368975	0.0079618566657			94.031570584186	0.2643114940485		
645	303.47449118554	8.29000000e-005			94.22580031752	0.2691466351035		
646	305.64014958914	0.0089757201121			94.22580031752	0.2683148385899		
647	305.84359871921	8.29000000e-005			94.384646460853	0.2779627308282		



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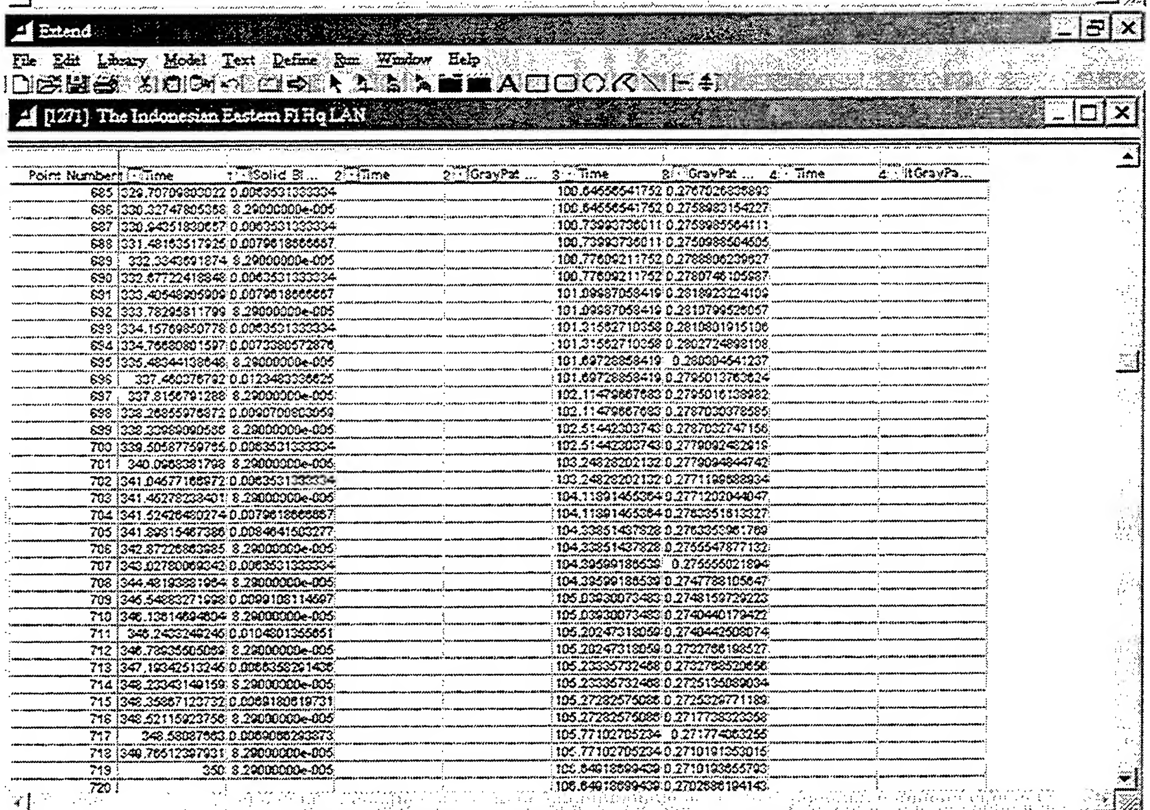
File Edit Library Model Text Define Run Window Help

[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ItGrayPa...
648	305.89629939742	0.0079818666667			94.364545460853	0.277107460852		
649	306.42384928891	8.29000000e-005			94.927100885173	0.277131958936		
650	306.89445207683	0.0079618666667			94.927100885173	0.278281860903		
651	307.65127387094	8.29000000e-005			95.422245460854	0.281149197541		
652	307.7443158784	0.0048341333334			95.422245460854	0.280289414062		
653	308.08384068628	8.29000000e-005			95.747204650854	0.280289878028		
654	310.88933098211	0.0055666475112			95.747204650854	0.279435335715		
655	310.92348527482	8.29000000e-005			95.948745460854	0.289190661818		
656	311.78695534422	0.0047443999999			95.948745460854	0.288311682547		
657	311.9049339911	8.29000000e-005			95.9482544497254	0.28831191462		
658	312.11032606375	0.0048341333334			95.9482544497254	0.287438242154		
659	312.11140372187	8.29000000e-005			96.462113117521	0.287479018036		
660	312.13173040395	0.0047443999999			96.462113117521	0.286810602362		
661	312.26029739546	0.0048341333334			96.817139807141	0.286810752815		
662	312.48304851246	0.0047443999999			96.817139807141	0.285747487415		
663	312.47905082465	8.29000000e-005			97.559028387927	0.285747717114		
664	312.76080347609	0.0048341333334			97.559028387927	0.284889615862		
665	312.97825887388	0.0079818666667			97.820852595583	0.28489986491		
666	313.15987315089	8.29000000e-005			97.820852595583	0.284038901140		
667	313.59257958974	0.0063531333334			98.111841584188	0.284118218448		
668	313.69528034414	0.0048341333334			98.111841584188	0.283270104361		
669	313.96997948791	0.0079818666667			98.466398684617	0.283270351324		
670	314.11808482998	0.0047443999999			98.466398684617	0.282427285301		
671	314.41404787171	8.29000000e-005			98.593139832984	0.282427532027		
672	315.03501685704	0.0047443999999			98.593139832984	0.281589468134		
673	318.54263116138	8.29000000e-005			98.92320591755	0.281589714128		
674	322.37532460222	0.0048341333334			98.92320591755	0.280755808465		
675	323.14156461772	8.29000000e-005			99.090220054034	0.280755853731		
676	324.45727811322	0.0174692585879			99.090220054034	0.279928662422		
677	324.61306471758	8.29000000e-005			99.108305532998	0.279928906965		
678	325.18354683219	0.0079818666667			99.108305532998	0.279105586560		
679	325.28514833595	8.29000000e-005			99.181894392339	0.279105830474		
680	325.41942872391	0.0079818666667			99.181894392339	0.278287338302		
681	325.55747803132	0.0063531333334			100.209730657	0.278287581411		
682	325.67391560097	8.29000000e-005			100.209730657	0.277473875032		
683	327.39053001221	0.0047443999999			100.34373002484	0.277474117430		



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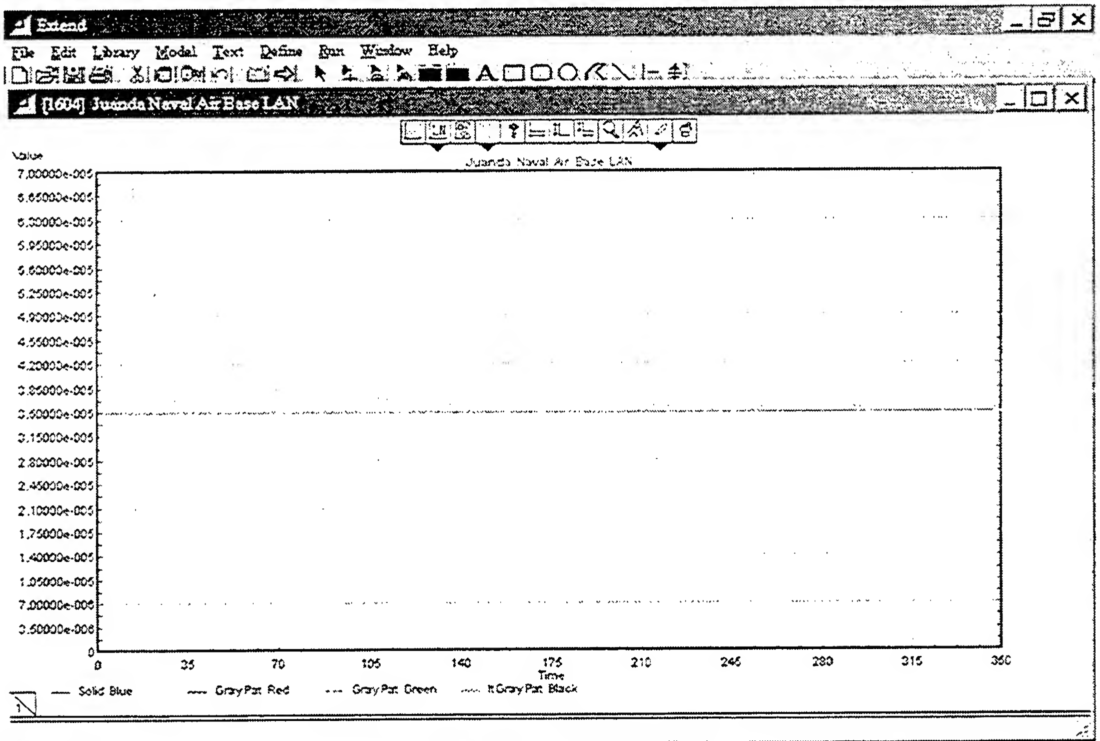
File Edit Library Model Text Define Run Window Help

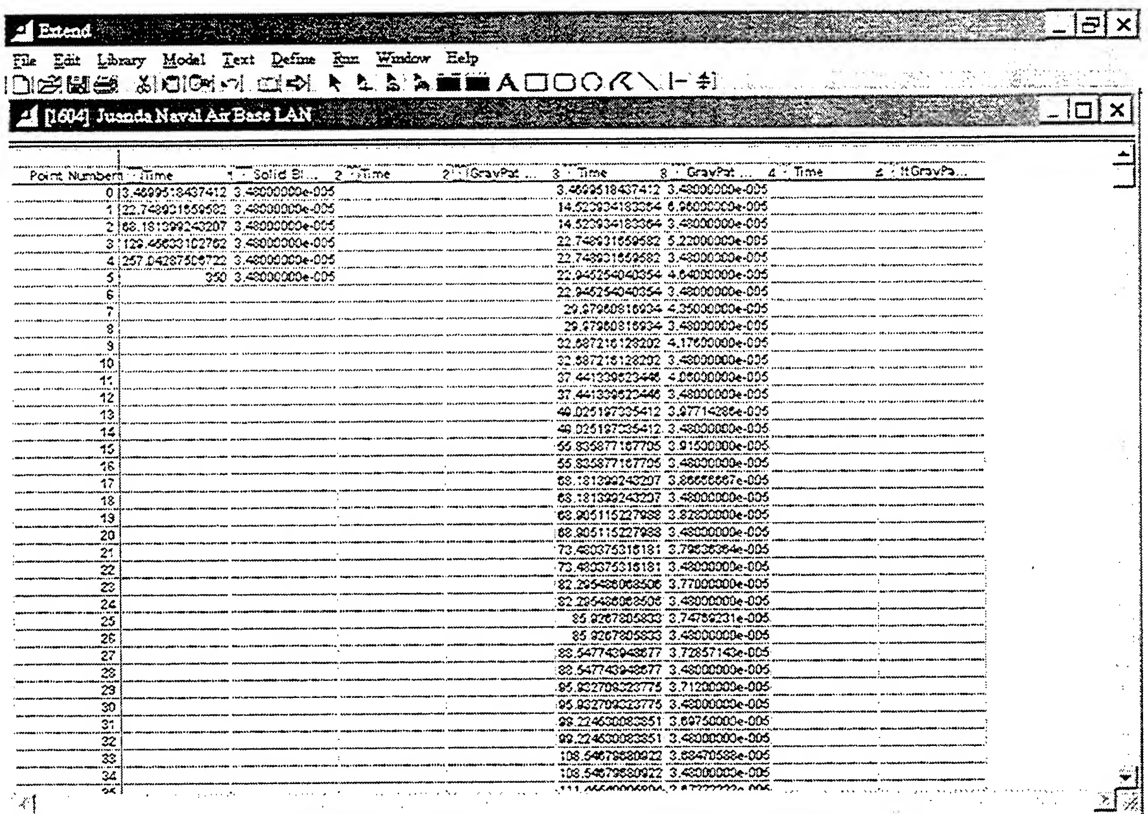
[1271] The Indonesian Eastern Fl Hq LAN

Point Number	1: Time	1: Solid Bl...	2: Time	2: GrayPat ...	3: Time	3: GrayPat ...	4: Time	4: ItGrayPa...
685	329.70709800022	0.0063531333334			100.64556541752	0.276702683589		
686	330.32747805358	8.29000000e-005			100.64556541752	0.275898315422		
687	330.94351830657	0.0063531333334			100.73993736011	0.275898556411		
688	331.48163517925	0.0079818666667			100.73993736011	0.275098856460		
689	332.3343691874	8.29000000e-005			100.77609211752	0.278880623962		
690	332.67722413848	0.0063531333334			100.77609211752	0.278074610598		
691	333.40548905909	0.0079818666667			101.09987058419	0.281892322410		
692	333.78295811799	8.29000000e-005			101.09987058419	0.281079952605		
693	334.15769850778	0.0063531333334			101.31562710358	0.281080191510		
694	334.76680801597	0.0073380572878			101.31562710358	0.280272489810		
695	335.48344138648	8.29000000e-005			101.69728858419	0.28030454123		
696	337.460378782	0.0123483336625			101.69728858419	0.279501376362		
697	337.8156791288	8.29000000e-005			102.11479867683	0.279501613998		
698	338.26855976872	0.0090700803059			102.11479867683	0.278703037858		
699	338.32969090588	8.29000000e-005			102.51442303743	0.278703274715		
700	339.50587759765	0.0063531333334			102.51442303743	0.277909248291		
701	340.0968381798	8.29000000e-005			103.24828202132	0.277909484474		
702	341.04677168972	0.0063531333334			103.24828202132	0.277119968893		
703	341.46278233401	8.29000000e-005			104.11891465364	0.277120204404		
704	341.52428480274	0.0079818666667			104.11891465364	0.276335181332		
705	341.89815487386	0.0084641503277			104.33851437828	0.276335398176		
706	342.87226883985	8.29000000e-005			104.33851437828	0.275554787713		
707	343.02780069342	0.0063531333334			104.39599186539	0.27555502189		
708	344.48193981984	8.29000000e-005			104.39599186539	0.274778310564		
709	346.54883271998	0.0099108114697			105.03930073483	0.274815972922		
710	346.13814694804	8.29000000e-005			105.03930073483	0.274044017942		
711	346.2433249246	0.0104801355651			105.20247318059	0.274044250807		
712	346.78935605089	8.29000000e-005			105.20247318059	0.273278619852		
713	347.19342513246	0.0068358291436			105.23335732468	0.273278252065		
714	348.22343149159	8.29000000e-005			105.23335732468	0.272513508903		
715	348.35857123732	0.0069180819731			105.27282575086	0.272532877118		
716	348.52115923756	8.29000000e-005			105.27282575086	0.271773832335		
717	348.58087583	0.0069086293373			105.77102705234	0.27177406325		
718	349.76512397931	8.29000000e-005			105.77102705234	0.271019135301		
719	350	8.29000000e-005			105.84918699409	0.271019386579		
720					106.84918699409	0.270268819414		

Run 3, Data Delay within the 2nd LAN

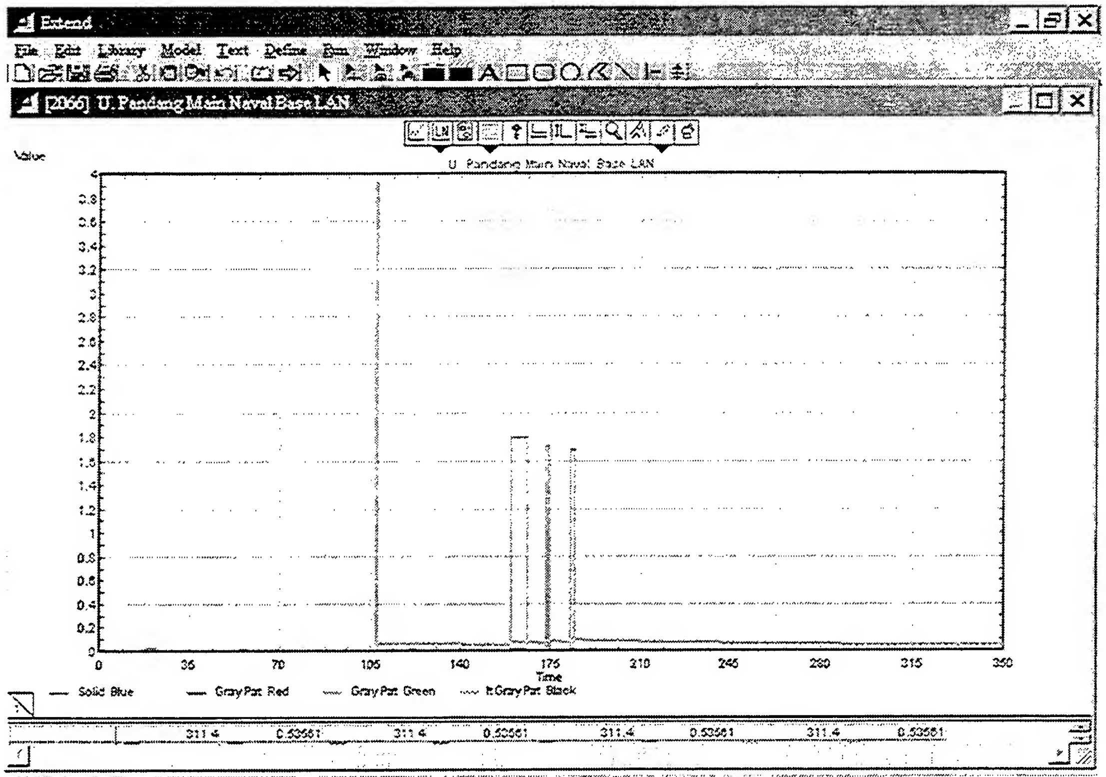


Run 3, the 3rd LAN



Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
0	3.4699518437412	3.48000000e-005			3.4699518437412	3.48000000e-005		
1	22.748931659582	3.48000000e-005			14.523934183364	6.96000000e-005		
2	68.181399243207	3.48000000e-005			14.523934183364	3.48000000e-005		
3	129.45633102762	3.48000000e-005			22.748931659582	5.22000000e-005		
4	257.04287506722	3.48000000e-005			22.748931659582	3.48000000e-005		
5	350	3.48000000e-005			22.946254040354	4.64000000e-005		
6					22.946254040354	3.48000000e-005		
7					29.979608816934	4.35000000e-005		
8					29.979608816934	3.48000000e-005		
9					32.687216128202	4.17600000e-005		
10					32.687216128202	3.48000000e-005		
11					37.441339623446	4.06000000e-005		
12					37.441339623446	3.48000000e-005		
13					49.025197335412	3.97714286e-005		
14					49.025197335412	3.48000000e-005		
15					55.835877167705	3.91500000e-005		
16					55.835877167705	3.48000000e-005		
17					68.181399243207	3.86666667e-005		
18					68.181399243207	3.48000000e-005		
19					68.905115227988	3.82800000e-005		
20					68.905115227988	3.48000000e-005		
21					73.480375316181	3.79636364e-005		
22					73.480375316181	3.48000000e-005		
23					82.295486068506	3.77000000e-005		
24					82.295486068506	3.48000000e-005		
25					85.9267805833	3.74769231e-005		
26					85.9267805833	3.48000000e-005		
27					88.547743948677	3.72857143e-005		
28					88.547743948677	3.48000000e-005		
29					95.932709323775	3.71200000e-005		
30					95.932709323775	3.48000000e-005		
31					99.224630083351	3.69750000e-005		
32					99.224630083351	3.48000000e-005		
33					108.54679580922	3.68470588e-005		
34					108.54679580922	3.48000000e-005		
35					[illegible]	[illegible]		

Run 3, Data Delay within the 3rd LAN



Run 3, the 4th LAN

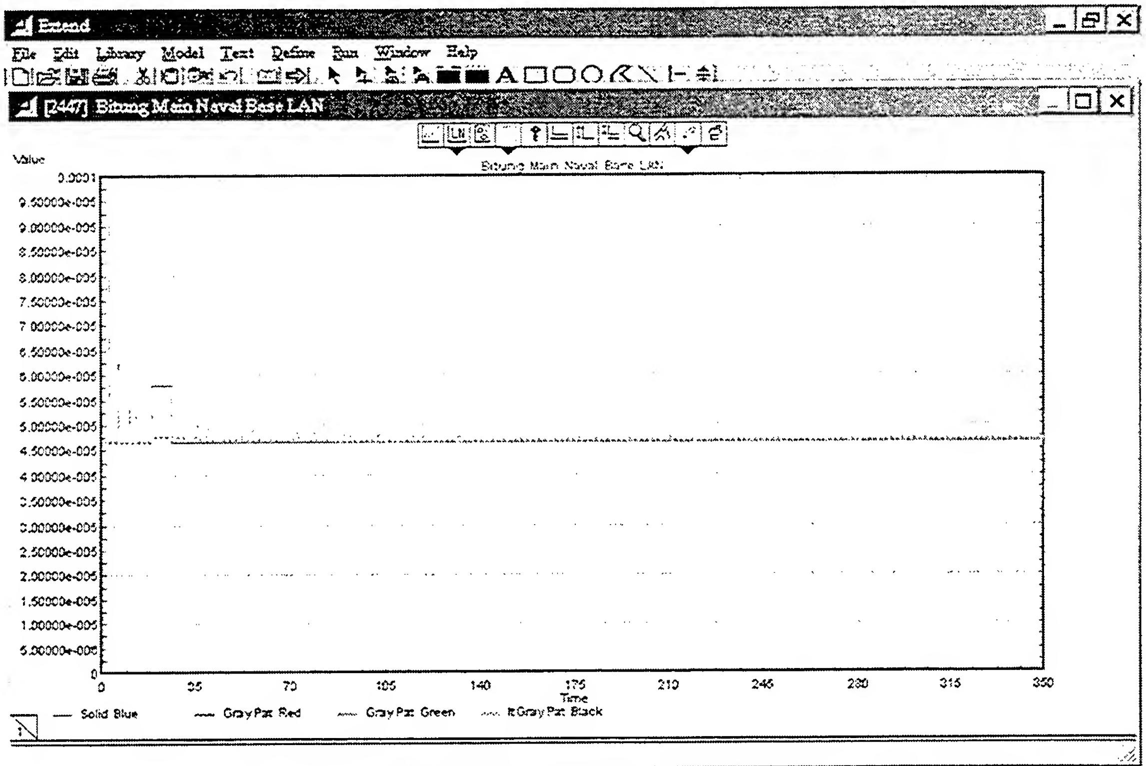
Extend

File Edit Library Model Text Define Run Window Help

[2066] U. Pandang Main Naval Base LAN

Point Numbers	1 Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ltGrayPa...
0	0.3837205	0.003260748369			0.3837205	0.003260748369		
1	1.4695478892551	5.84000000e-005			1.4695478892551	0.003319148369		
2	1.7353724	0.0126895772341			1.4695478892551	0.0016595741846		
3	2.2918885753692	5.84000000e-005			1.7353724	0.0060043528016		
4	8.5576795029965	5.84000000e-005			1.7353724	0.0053362418677		
5	17.706686463207	0.0182338070817			2.2918885753692	0.0053557085344		
6	22.244831288838	5.84000000e-005			2.2918885753692	0.0040167814008		
7	55.312024050942	0.0125215735397			8.5575795029965	0.0040013814008		
8	55.502955430927	5.84000000e-005			8.5575795029965	0.0032251051206		
9	107.15253211752	3.9190072475286			9.7991949293881	0.0032367851206		
10	107.90818980862	5.84000000e-005			9.7991949293881	0.0026973209339		
11	120.71290945086	0.0089582747925			10.262983940659	0.0027070542672		
12	121.8453625295	5.84000000e-005			10.262983940659	0.002320332229		
13	159.82675211755	1.7885350388243			12.425550580417	0.0023286750862		
14	166.01335341159	5.84000000e-005			12.425550580417	0.0020375907004		
15	173.47135211755	1.7151379886964			13.605837918474	0.0020448907004		
16	174.38962634922	5.84000000e-005			13.605837918474	0.0018178805226		
17	183.18952868422	1.8869031781719			16.309272687569	0.0018241695115		
18	184.31613918815	5.84000000e-005			16.309272687569	0.0016417525603		
19	190.8094006556	0.0135804780537			17.083132750559	0.0016475925603		
20	190.62954053538	5.84000000e-005			17.083132750559	0.0014978114185		
21	265.20871386522	6.83197466e-005			17.706686463207	0.0031554302441		
22	267.92483317759	5.84000000e-005			17.706686463207	0.0028924777237		
23	350	5.84000000e-005			22.244831288838	0.0028973443904		
24					22.244831288838	0.002674471746		
25					23.264681140702	0.0026789840527		
26					23.264681140702	0.0024876094775		
27					26.746809004775	0.0024917809061		
28					26.746809004775	0.002325662179		
29					26.782036311966	0.0023295655123		
30					26.782036311966	0.0021839582928		
31					27.424896308875	0.0021876082928		
32					27.424896308875	0.002058925462		
33					28.318678140792	0.0020622807462		
34					28.318678140792	0.0019477851492		

Run 3, Data Delay within the 4th LAN



Run 3, the 5th LAN

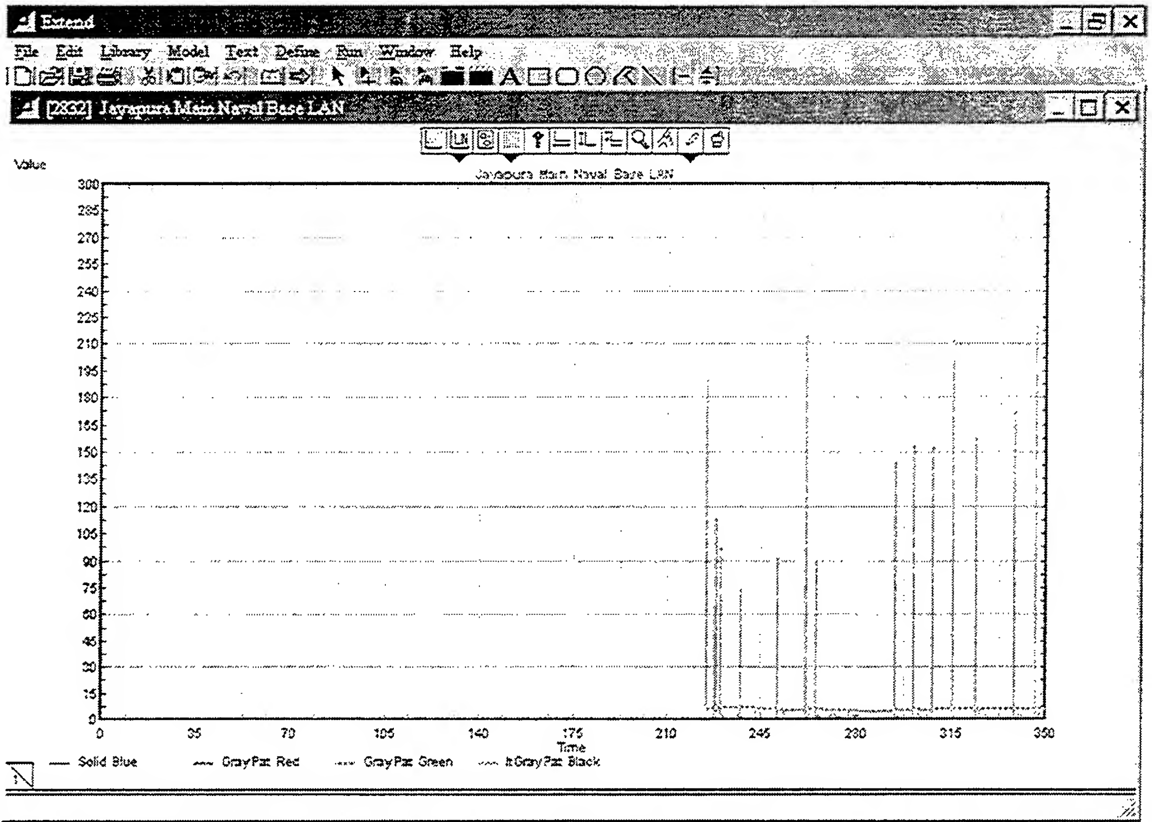
Extend

File Edit Library Model Text Define Run Window Help

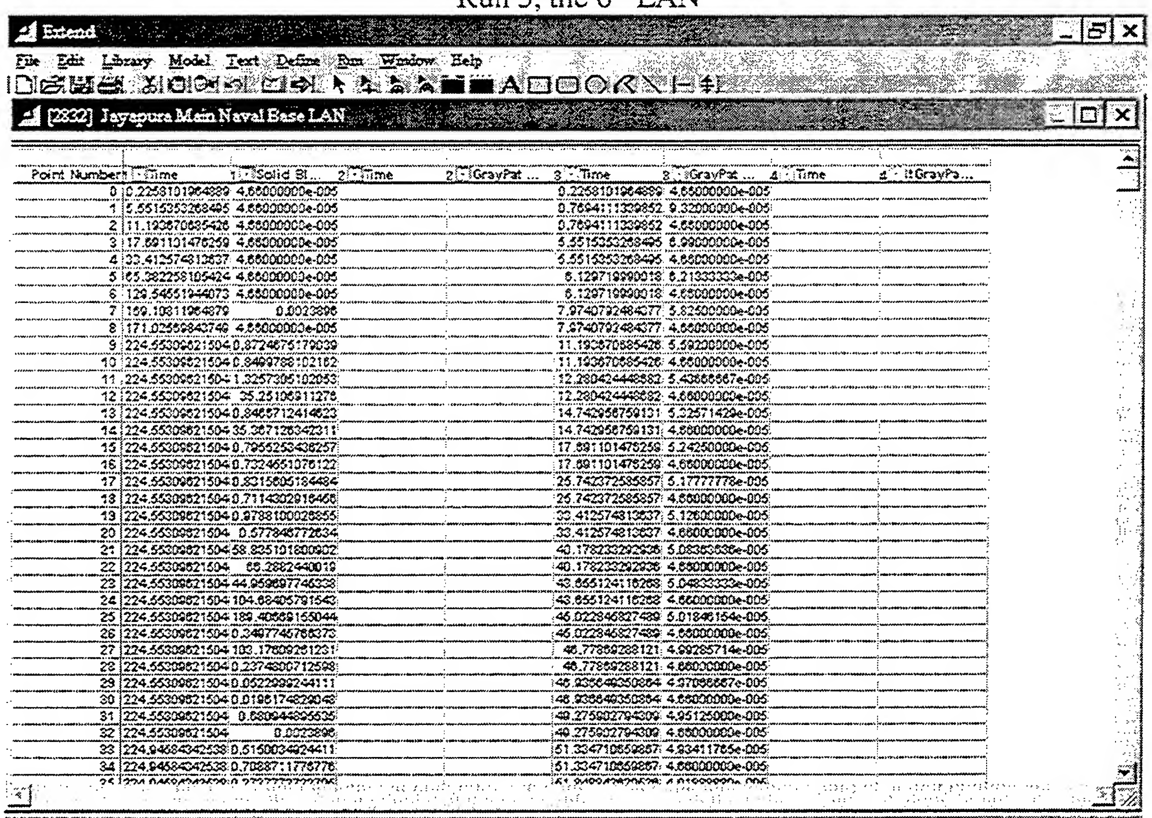
[2447] Bitung Main Naval Base LAN

Point Number	1 : Time	1 : Solid Bl...	2 : Time	2 : GrayPat ...	3 : Time	3 : GrayPat ...	4 : Time	4 : ltGrayPa...
0	2.3529575083161	4.66000000e-005			2.3529575083161	4.66000000e-005		
1	8.89934773584	4.66000000e-005			3.1668751024627	9.32000000e-005		
2	19.280421778938	5.78185440e-005			3.1668751024627	4.66000000e-005		
3	25.580347795163	4.66000000e-005			5.6249440153062	6.99000000e-005		
4	32.00524001116	4.66000000e-005			5.6249440153062	4.66000000e-005		
5	64.632619234961	4.66000000e-005			6.9294491512375	6.21333333e-005		
6	131.47552711289	4.66000000e-005			6.9294491512375	4.66000000e-005		
7	262.68922373648	4.66000000e-005			8.89934773584	5.82500000e-005		
8	350	4.66000000e-005			8.89934773584	4.66000000e-005		
9					10.430585269911	5.59200000e-005		
10					10.430585269911	4.66000000e-005		
11					10.465618975135	5.43666667e-005		
12					10.465618975135	4.66000000e-005		
13					11.153404948504	5.32571429e-005		
14					11.153404948504	4.66000000e-005		
15					12.821643787126	5.24250000e-005		
16					12.821643787126	4.66000000e-005		
17					12.849294480213	5.17777778e-005		
18					12.849294480213	4.66000000e-005		
19					13.900931882047	5.12600000e-005		
20					13.900931882047	4.66000000e-005		
21					19.280421778938	5.18562317e-005		
22					19.280421778938	4.75343781e-005		
23					25.580347795163	5.14182124e-005		
24					25.580347795163	4.74829653e-005		
25					26.819233570898	5.10475807e-005		
26					26.819233570898	4.74013249e-005		
27					28.747263446835	5.07298864e-005		
28					28.747263446835	4.73479030e-005		
29					30.110831870168	5.04645699e-005		
30					30.110831870168	4.73011593e-005		
31					32.00524001116	5.02136593e-005		
32					32.00524001116	4.72599146e-005		
33					32.147512803063	5.00010911e-005		
34					32.147512803063	4.72232527e-005		
35					[illegible]	[illegible]		

Run 3, Data Delay within the 5th LAN

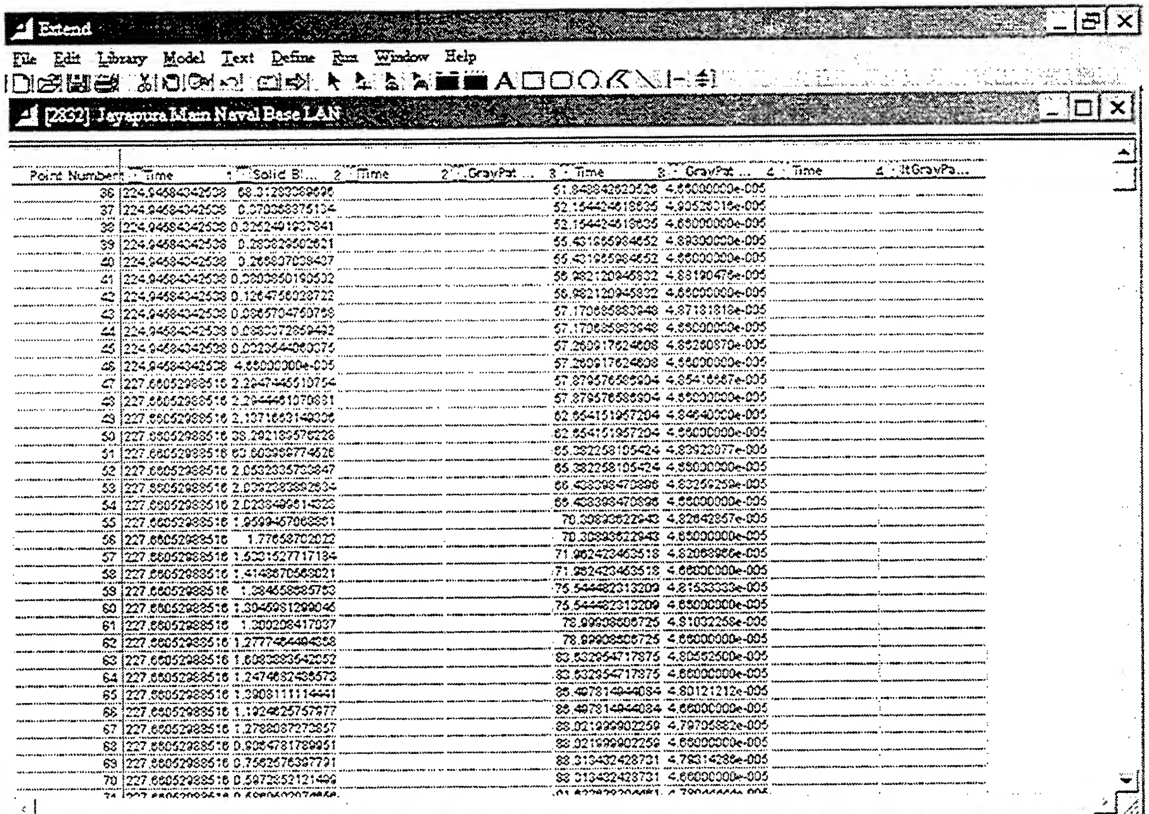


Run 3, the 6th LAN



Point Number	1 Time	1 Solid Bl...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ltGrayPa...
0	0.2258101964889	4.65000000e-005			0.2258101964889	4.65000000e-005		
1	5.5515353268495	4.65000000e-005			0.7694111339852	9.32000000e-005		
2	11.193670685426	4.65000000e-005			0.7694111339852	4.65000000e-005		
3	17.691101476259	4.65000000e-005			5.5515353268495	6.99000000e-005		
4	33.412574813637	4.65000000e-005			5.5515353268495	4.65000000e-005		
5	65.382258105424	4.65000000e-005			6.129719990018	6.21333333e-005		
6	129.54651944073	4.65000000e-005			6.129719990018	4.65000000e-005		
7	169.10811964879	0.0023896			7.9740792484077	5.82500000e-005		
8	171.02559840749	4.65000000e-005			7.9740792484077	4.65000000e-005		
9	224.55309621504	0.8724675179039			11.193670685426	5.59200000e-005		
10	224.55309621504	0.8499788102162			11.193670685426	4.65000000e-005		
11	224.55309621504	1.3257305102053			12.280424448582	5.43666667e-005		
12	224.55309621504	35.25106911278			12.280424448582	4.65000000e-005		
13	224.55309621504	0.8465712414623			14.742958759131	5.32571429e-005		
14	224.55309621504	35.367126342311			14.742958759131	4.65000000e-005		
15	224.55309621504	0.7955253438257			17.691101476259	5.24250000e-005		
16	224.55309621504	0.7324651076122			17.691101476259	4.65000000e-005		
17	224.55309621504	0.8315605184484			25.742372585857	5.17777778e-005		
18	224.55309621504	0.7114302916468			25.742372585857	4.65000000e-005		
19	224.55309621504	0.9788100028655			33.412574813637	5.12600000e-005		
20	224.55309621504	0.577848772634			33.412574813637	4.65000000e-005		
21	224.55309621504	58.835101800902			40.178233292936	5.08363636e-005		
22	224.55309621504	65.2882440019			40.178233292936	4.65000000e-005		
23	224.55309621504	44.959697746338			43.655124116268	5.04833333e-005		
24	224.55309621504	104.68405791543			43.655124116268	4.65000000e-005		
25	224.55309621504	189.40569155044			46.022846827489	5.01846154e-005		
26	224.55309621504	0.3497745766373			46.022846827489	4.65000000e-005		
27	224.55309621504	103.17809261231			46.778692881 21	4.99285714e-005		
28	224.55309621504	0.2374800712598			46.77869288121	4.65000000e-005		
29	224.55309621504	0.0522999244111			46.935649350864	4.97066667e-005		
30	224.55309621504	0.0198174829048			46.935649350864	4.65000000e-005		
31	224.55309621504	0.680944806535			49.275902794309	4.95125000e-005		
32	224.55309621504	0.0023896			49.275902794309	4.65000000e-005		
33	224.94684342538	0.5150034924411			51.334710659867	4.93411765e-005		
34	224.94684342538	0.708871177677 6			51.334710659867	4.65000000e-005		

Run 3, Data Delay within the 6th LAN



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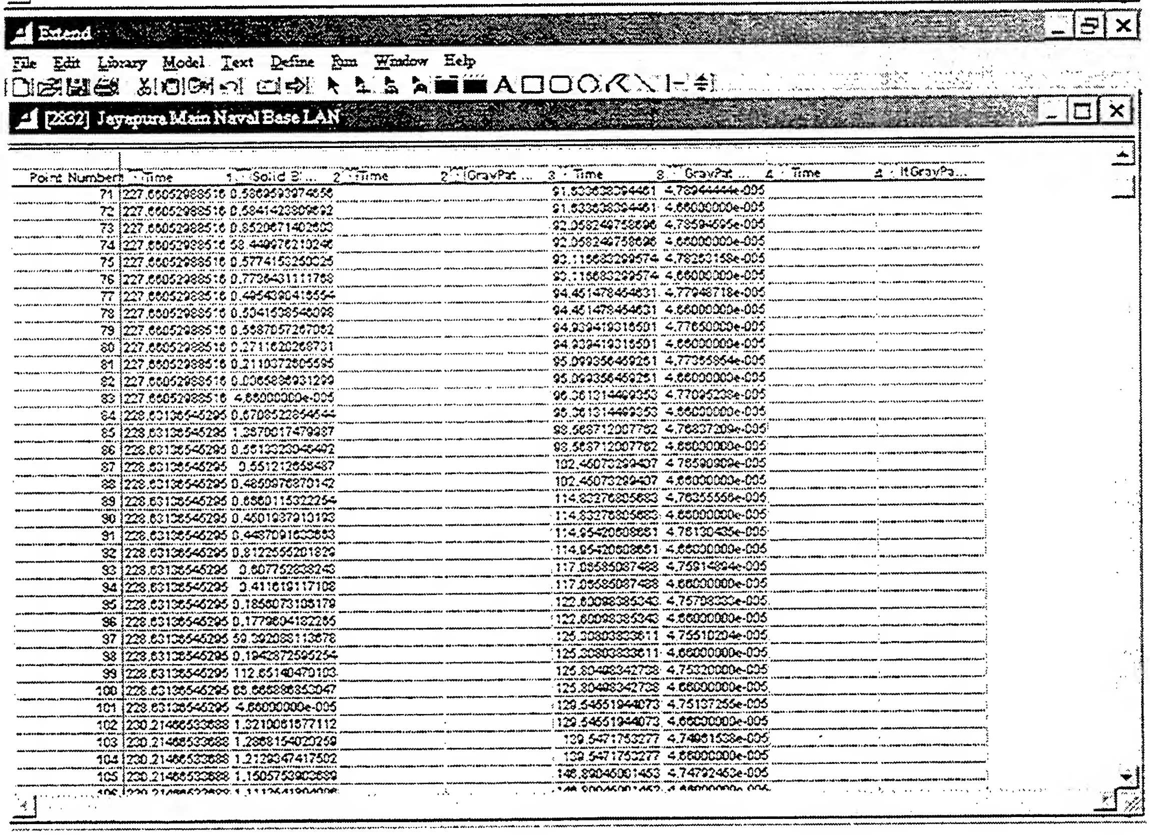
File Edit Library Model Text Define Run Window Help

[2832] Jayapura Main Naval Base LAN

Point Number	1 : Time	1 : Solid B...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ltGravPa...
36	224.94684342538	68.31283369696			51.848842820526	4.66000000e-005		
37	224.94684342538	0.079068875134			52.154424618635	4.90526016e-005		
38	224.94684342538	0.3252491937841			52.154424618635	4.66000000e-005		
39	224.94684342538	0.280823602621			55.431965984652	4.89300000e-005		
40	224.94684342538	0.269807039437			55.431965984652	4.66000000e-005		
41	224.94684342538	0.0280950190632			56.982120945832	4.88190476e-005		
42	224.94684342538	0.1264756028722			56.982120945832	4.66000000e-005		
43	224.94684342538	0.0965704760759			57.170685883948	4.87181818e-005		
44	224.94684342538	0.0930072869492			57.170685883948	4.66000000e-005		
45	224.94684342538	0.0223644060075			57.260917624608	4.86260870e-005		
46	224.94684342538	4.66000000e-005			57.260917624608	4.66000000e-005		
47	227.66052988516	2.2947446510754			57.879576585904	4.85416667e-005		
48	227.66052988516	2.2944461070631			57.879576585904	4.66000000e-005		
49	227.66052988516	2.1371663149306			62.654151957204	4.84640000e-005		
50	227.66052988516	38.292189576226			62.654151957204	4.66000000e-005		
51	227.66052988516	63.603958774626			65.382258105424	4.83923077e-005		
52	227.66052988516	2.0532335730847			65.382258105424	4.66000000e-005		
53	227.66052988516	2.0392383392634			66.408398470898	4.83259259e-005		
54	227.66052988516	2.0239499814323			66.408398470898	4.66000000e-005		
55	227.66052988516	1.9599467068851			70.30893622943	4.82642857e-005		
56	227.66052988516	1.77658702022			70.30893622943	4.66000000e-005		
57	227.66052988516	1.5231527717134			71.962423463518	4.82068966e-005		
58	227.66052988516	1.4143870569021			71.962423463518	4.66000000e-005		
59	227.66052988516	1.384658085753			75.544482313209	4.81533333e-005		
60	227.66052988516	1.3046981299046			75.544482313209	4.66000000e-005		
61	227.66052988516	1.300208417037			78.99908606725	4.81032258e-005		
62	227.66052988516	1.2777464494058			78.99908606725	4.66000000e-005		
63	227.66052988516	1.6083893642052			83.632954717875	4.80562500e-005		
64	227.66052988516	1.2474632436573			83.632954717875	4.66000000e-005		
65	227.66052988516	1.3908111114441			86.497814944084	4.80121212e-005		
66	227.66052988516	1.1924625757977			86.497814944084	4.66000000e-005		
67	227.66052988516	1.2788087273857			88.021999902259	4.79705882e-005		
68	227.66052988516	0.9084781789951			88.021999902259	4.66000000e-005		
69	227.66052988516	0.7562676397791			88.313432428731	4.79314286e-005		
70	227.66052988516	0.5972852121499			88.313432428731	4.66000000e-005		

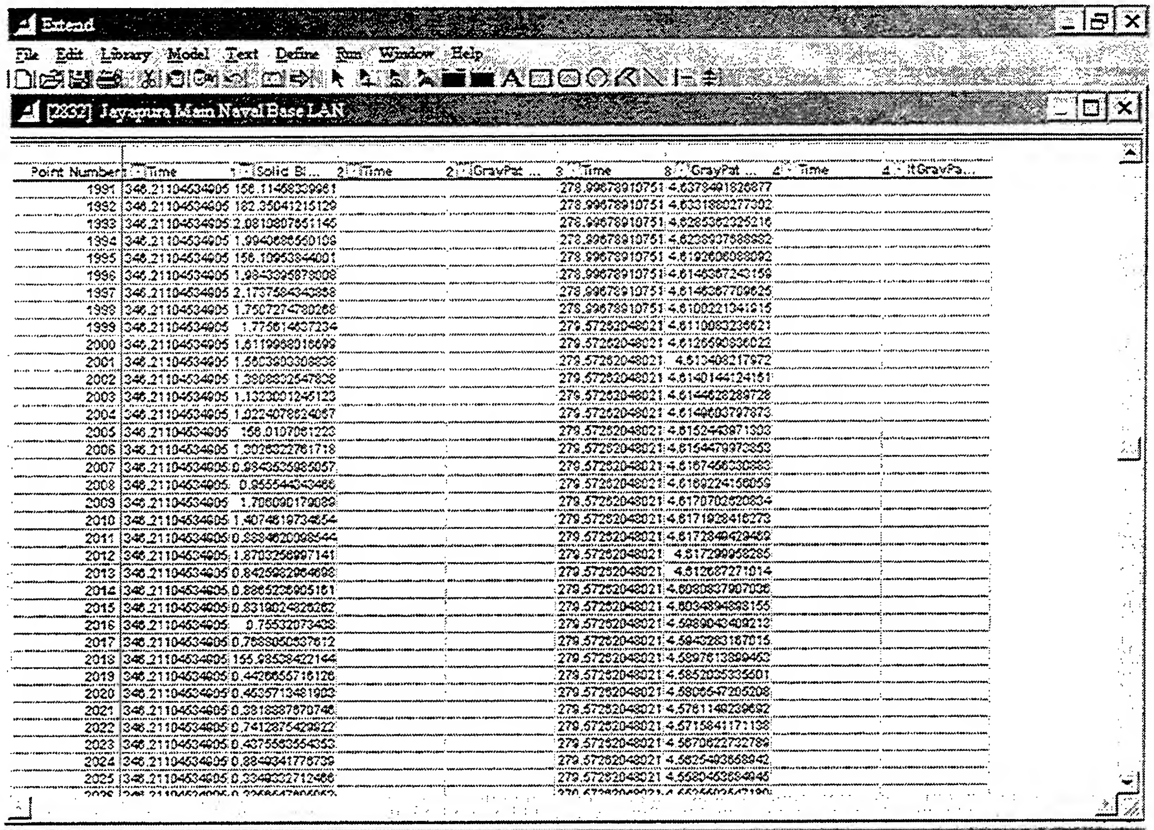


Extend

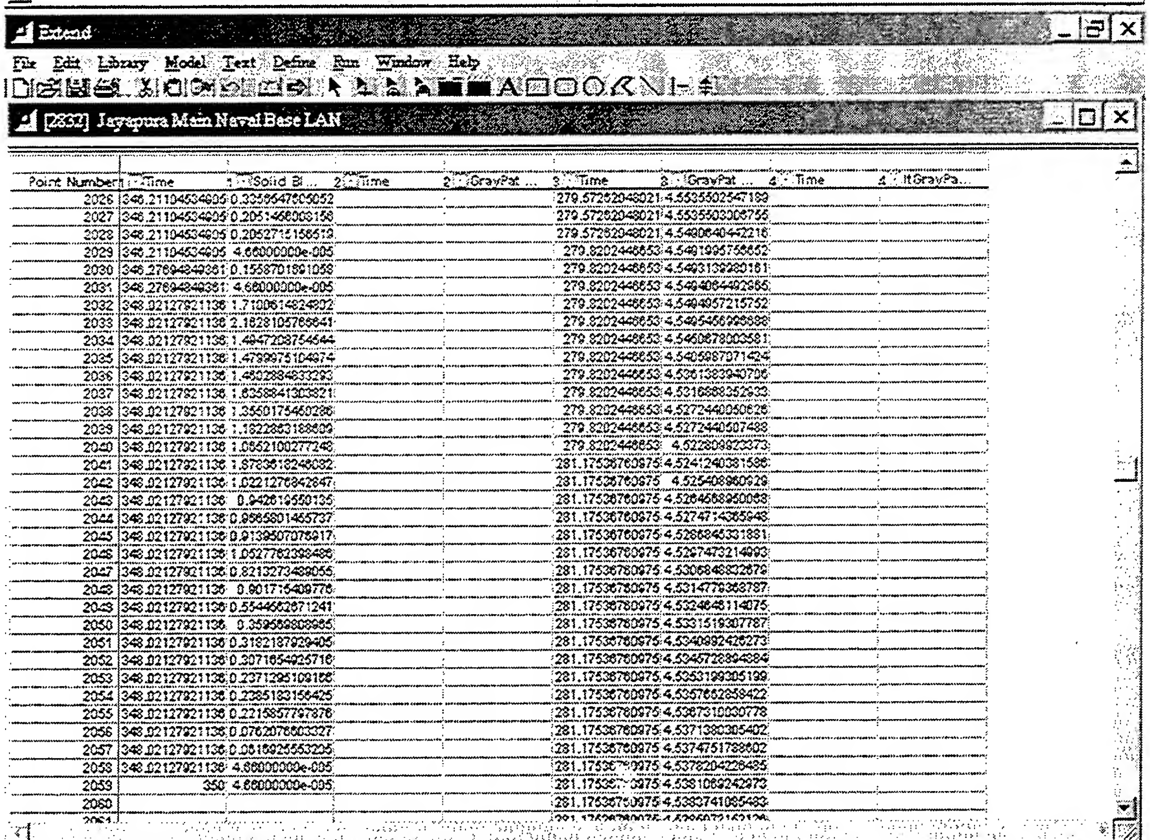
File Edit Library Model Text Define Run Window Help

[2832] Jayapura Main Naval Base LAN

Point Number	1 : Time	1 : Solid B...	2 : Time	2 : GravPat ...	3 : Time	3 : GravPat ...	4 : Time	4 : ltGravPa...
71	227.66052988516	0.5869593974656			91.533638094461	4.78944444e-005		
72	227.66052988516	0.5841423309692			91.533638094461	4.66000000e-005		
73	227.66052988516	0.8520671402603			92.058249758696	4.78594595e-005		
74	227.66052988516	58.449976210246			92.058249758696	4.66000000e-005		
75	227.66052988516	0.5774153250025			93.115683299574	4.78263158e-005		
76	227.66052988516	0.7736431111758			93.115683299574	4.66000000e-005		
77	227.66052988516	0.4954390415554			94.451478464631	4.77948718e-005		
78	227.66052988516	0.5341538546098			94.451478464631	4.66000000e-005		
79	227.66052988516	0.5587057267082			94.939419315501	4.77650000e-005		
80	227.66052988516	0.2711620268731			94.939419315501	4.66000000e-005		
81	227.66052988516	0.2110372605595			95.099356469251	4.77365854e-005		
82	227.66052988516	0.0065896931299			95.099356469251	4.66000000e-005		
83	227.66052988516	4.66000000e-005			96.361314499353	4.77095238e-005		
84	228.63136546295	0.6708522864644			96.361314499353	4.66000000e-005		
85	228.63136546295	1.3570017479387			98.568712007782	4.76837209e-005		
86	228.63136546295	0.5513323046492			98.568712007782	4.66000000e-005		
87	228.63136546295	0.551212658487			102.46073299437	4.76590909e-005		
88	228.63136546295	0.4850976870142			102.46073299437	4.66000000e-005		
89	228.63136546295	0.6560115322254			114.83276805683	4.76355556e-005		
90	228.63136546295	0.4501937910193			114.83276805683	4.66000000e-005		
91	228.63136546295	0.4487091603863			114.95420608651	4.76130435e-005		
92	228.63136546295	0.8122556201829			114.95420608651	4.66000000e-005		
93	228.63136546295	0.607752833243			117.05585087488	4.75914894e-005		
94	228.63136546295	0.411619117108			117.05585087488	4.66000000e-005		
95	228.63136546295	0.1856073195179			122.80098385343	4.75708333e-005		
96	228.63136546295	0.1779804182265			122.80098385343	4.66000000e-005		
97	228.63136546295	59.392088113678			125.30803833611	4.75510204e-005		
98	228.63136546295	0.1942872595254			125.30803833611	4.66000000e-005		
99	228.63136546295	112.65140470193			125.80498342738	4.75320000e-005		
100	228.63136546295	66.666896353047			125.80498342738	4.66000000e-005		
101	228.63136546295	4.66000000e-005			129.54651944073	4.75137255e-005		
102	230.21466533688	1.3210061577112			129.54651944073	4.66000000e-005		
103	230.21466533688	1.2868154020259			139.5471753277	4.74961538e-005		
104	230.21466533688	1.2129347417502			139.5471753277	4.66000000e-005		
105	230.21466533688	1.1505753903699			148.89046001453	4.74792453e-005		



Point Number	1 Time	1 Solid Bl ...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ItGrayPa...
1991	346.21104634605	156.11468309961			278.99678910751	4.6379491926877		
1992	346.21104634605	182.35041215129			278.99678910751	4.6331880277302		
1993	346.21104634605	2.0810807651146			278.99678910751	4.6285362325216		
1994	346.21104634605	1.9940686560109			278.99678910751	4.6239937588982		
1995	346.21104634605	156.10953844001			278.99678910751	4.6192606088092		
1996	346.21104634605	1.9843395879008			278.99678910751	4.6146367243159		
1997	346.21104634605	2.1737584342958			278.99678910751	4.6146367709625		
1998	346.21104634605	1.7507274780268			278.99678910751	4.6100221341915		
1999	346.21104634605	1.7756146072340			279.57252048021	4.6110083235621		
2000	346.21104634605	1.6119968016699			279.57252048021	4.6126590936022		
2001	346.21104634605	1.5603803308838			279.57252048021	4.613408217972		
2002	346.21104634605	1.3908832547808			279.57252048021	4.6140144124151		
2003	346.21104634605	1.1323001245123			279.57252048021	4.6144628289728		
2004	346.21104634605	1.0224078824067			279.57252048021	4.6149603797873		
2005	346.21104634605	156.0107081223			279.57252048021	4.6152443871303		
2006	346.21104634605	1.3026322781718			279.57252048021	4.6154479970353		
2007	346.21104634605	0.9943535985057			279.57252048021	4.6167466030983		
2008	346.21104634605	0.955544343466			279.57252048021	4.6169224158059		
2009	346.21104634605	1.706090179089			279.57252048021	4.6170702520834		
2010	346.21104634605	1.4074619734654			279.57252048021	4.6171928416273		
2011	346.21104634605	0.8934620098544			279.57252048021	4.6172849429469		
2012	346.21104634605	1.8703256997141			279.57252048021	4.617299958285		
2013	346.21104634605	0.8425982964698			279.57252048021	4.612687271014		
2014	346.21104634605	0.8865236905161			279.57252048021	4.6080837907036		
2015	346.21104634605	0.8319024826262			279.57252048021	4.6034894898155		
2016	346.21104634605	0.75532073433			279.57252048021	4.5989043409212		
2017	346.21104634605	0.7683050537612			279.57252048021	4.5940283187015		
2018	346.21104634605	155.93508422144			279.57252048021	4.5897613899463		
2019	346.21104634605	0.4426655716126			279.57252048021	4.5852035335601		
2020	346.21104634605	0.4635713481903			279.57252048021	4.5806547205208		
2021	346.21104634605	0.3818887870746			279.57252048021	4.5761148239682		
2022	346.21104634605	0.7412875429922			279.57252048021	4.5715841177138		
2023	346.21104634605	0.4375583554353			279.57252048021	4.5670622732789		
2024	346.21104634605	0.8849341776739			279.57252048021	4.5625493868942		
2025	346.21104634605	0.3349332712466			279.57252048021	4.5580463684945		



Point Number	1 Time	1 Solid Bl ...	2 Time	2 GrayPat ...	3 Time	3 GrayPat ...	4 Time	4 ItGrayPa...
2026	346.21104634605	0.3356647605052			279.57252048021	4.5535502547189		
2027	346.21104634605	0.2051468003158			279.57252048021	4.5535503008755		
2028	346.21104634605	0.2052715156519			279.57252048021	4.5490640442216		
2029	346.21104634605	4.66000000e-005			279.8202446653	4.5491995758652		
2030	346.27694849361	0.1558701891058			279.8202446653	4.5493139280161		
2031	346.27694849361	4.66000000e-005			279.8202446653	4.5494064492865		
2032	348.02127921136	1.7100614824802			279.8202446653	4.5494957215752		
2033	348.02127921136	2.1828105765641			279.8202446653	4.5495456998698		
2034	348.02127921136	1.4947208754644			279.8202446653	4.5450678003581		
2035	348.02127921136	1.4799975104974			279.8202446653	4.5405987071424		
2036	348.02127921136	1.4502884833293			279.8202446653	4.5361383940706		
2037	348.02127921136	1.8358841303821			279.8202446653	4.5316868352933		
2038	348.02127921136	1.3550175460286			279.8202446653	4.5272440050626		
2039	348.02127921136	1.1822863188609			279.8202446653	4.5272440507488		
2040	348.02127921136	1.0552100277248			279.8202446653	4.522808820373		
2041	348.02127921136	1.8783618248032			281.17536760975	4.5241240381538		
2042	348.02127921136	1.0221276842847			281.17536760975	4.525408960929		
2043	348.02127921136	0.942819550135			281.17536760975	4.5264668950058		
2044	348.02127921136	0.9565801465737			281.17536760975	4.5274714365948		
2045	348.02127921136	0.9139507078917			281.17536760975	4.5286845331881		
2046	348.02127921136	1.0527782398488			281.17536760975	4.5297473214993		
2047	348.02127921136	0.8213273488055			281.17536760975	4.5306848832672		
2048	348.02127921136	0.901775409776			281.17536760975	4.5314779368787		
2049	348.02127921136	0.5544662871241			281.17536760975	4.5324648114075		
2050	348.02127921136	0.359569808985			281.17536760975	4.5331519307787		
2051	348.02127921136	0.3182187929405			281.17536760975	4.5340892426273		
2052	348.02127921136	0.3071654925716			281.17536760975	4.5345728894984		
2053	348.02127921136	0.2371295109188			281.17536760975	4.5353199305199		
2054	348.02127921136	0.2385183156425			281.17536760975	4.5357662858422		
2055	348.02127921136	0.2215857797876			281.17536760975	4.5367310030778		
2056	348.02127921136	0.0762076603327			281.17536760975	4.5371380305402		
2057	348.02127921136	0.0516925553205			281.17536760975	4.5374751788602		
2058	348.02127921136	4.66000000e-005			281.17536760975	4.5378204226435		
2059	350	4.66000000e-005			281.17536760975	4.5381069242973		
2060					281.17536760975	4.5383741085483		

Run 3, Data Delay within the 6th LAN

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